HANGING ROCK STATE PARK

MASTER PARK

FINAL TEXT

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MASTER PLAN

FINAL TEXT

Prepared By:
North Carolina Department of Natural
Resources and Community Development
Division of Parks and Recreation
Design and Development Section

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TABLE OF CONTENTS

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Cultural Resources Analysis

A. Location, Access and Population 1
B. Regional Recreation Context 3

Natural Resources Analysis

A. Physiography and Geology 6
B. Soils 8
C. Hydrology 10
D. Climate 12
E. Forest Types and Associated Conditions 13
F. Fauna 22

Site Analysis

A. History 23
B. Adjacent Land Uses and Development Pressures 28
C. Hanging Rock State Park Use 31
D. Existing Site Conditions 33
   1. Central Park Activity Zone 34
   2. Peripheral Use Areas 40

Master Plan and Site Recommendations

A. Master Plan Concept 42
B. Central Park Activity Zone 44
C. Peripheral Use Areas
   1. Indian Creek 60
   2. Lower Cascades 62
   3. Tory's Den 65
D. Hiking Trails 68
E. Equestrian Trails 71
F. Development Program 73

Park Management Considerations

A. Services for Park Users 76
B. User Conflicts 78
C. Environmental Considerations 80
D. Natural Areas 83
E. Interpretation 85
F. Archaeology 87
G. Land Acquisition 88
H. Staffing 91

Appendix

Bibliography

Credits

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Foreword

Hanging Rock State Park was established in 1936 through a committee set up by citizens of Winston-Salem and Stokes County, who donated 3,000 acres to the State. The master planning process recognized this interest and support by involving interested citizens and park users in a series of public meetings. This public participation was invaluable to the landscape architects responsible for developing this plan, and has helped in formulating a plan which is responsive to the needs and concerns of the State and the park users and supporters.

The Civilian Conservation Corps built a large part of the existing park facilities, and in the forty-plus years since the park was established those facilities have been well-used, in certain instances, over-used. Therefore, most of the Plan deals with rehabilitation and renovation of the existing park activity areas and facilities, with expansion proposed only where demand has been proven, and then only when the development would not negatively impact upon the natural environment or the recreation experience. The Master Plan will thereby protect the natural features included in the park, while providing recreation opportunities for present and future generations.

CULTURAL RESOURCES ANALYSIS

LOCATION, ACCESS AND POPULATION

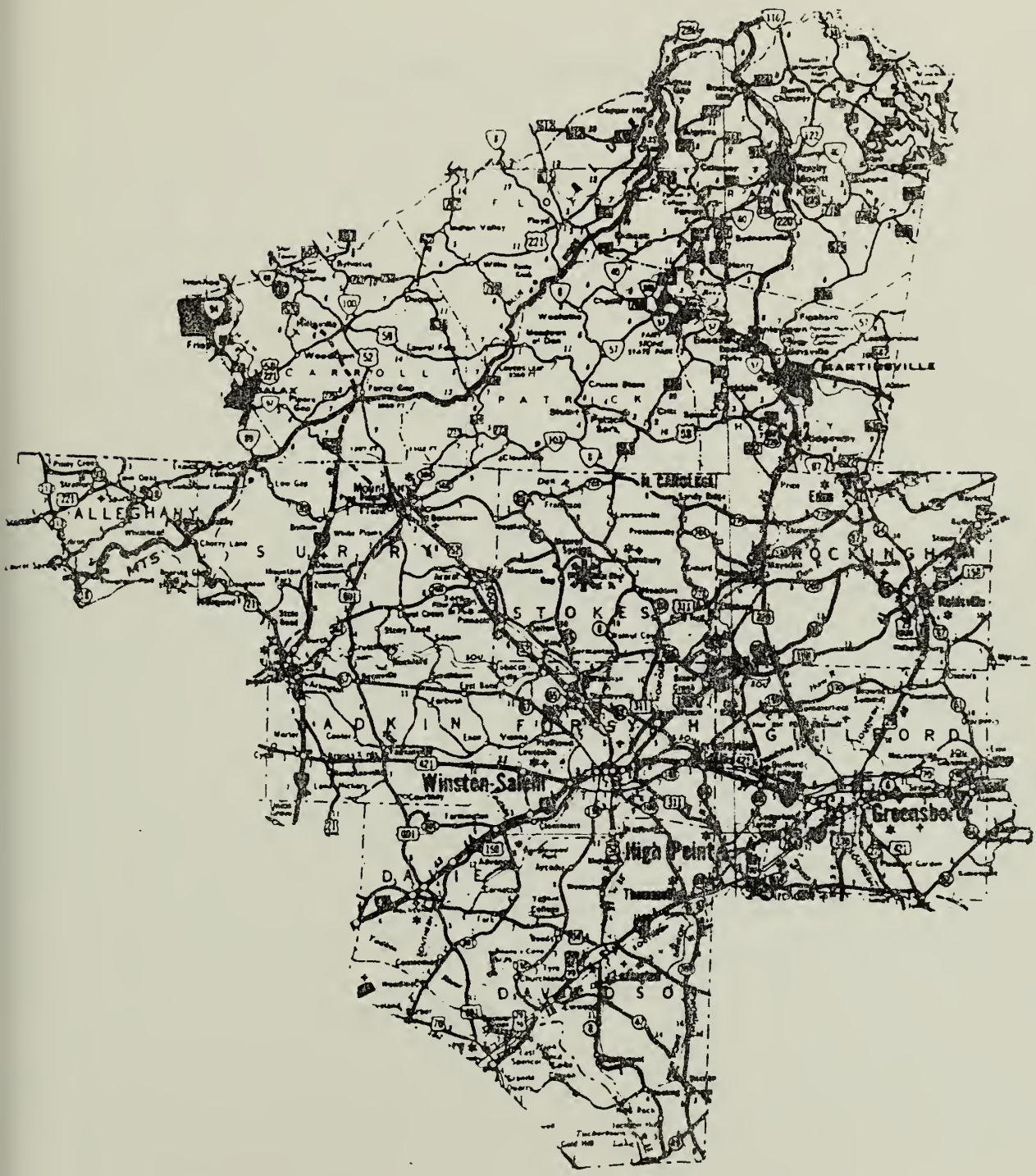
Hanging Rock State Park is located in the center of Stokes County, about ten miles south of the North Carolina-Virginia state line, and south of the Dan River, which bisects Stokes County from northwest to southeast. The 5,733 acres of the park adjoin the river for a short distance about 4 miles upstream from Danbury, the county seat.

Two U.S. highways (U.S. 52 and U.S. 311) pass through Stokes County in the southwest and southeast corners, respectively. The remainder of the county is served by N.C. highways and secondary roads. The park lies between two state highways, N.C. 66 on the west and N.C. 8-89 on the east, both generally aligned north-south through this part of the county. Secondary roads surround the park, and S.R. 2015 actually terminates within the park.

The park is about 30 miles (48.3 km) north of Winston-Salem, 45 miles (72.4 km) northwest of Greensboro, and 32 miles (51.5 km) east of Mount Airy in North Carolina; the closet cities in Virginia are Martinsville, about 40 miles (64.4 km) to the northeast, and Danville, about 50 miles (80.4 km) to the east-northeast. The Blue Ridge Parkway is about 35 miles (56.3 km) from the park at its closest point.

According to the North Carolina Statewide Comprehensive Outdoor Recreation Plan (SCORP), the 1980 population of the market area for Hanging Rock State Park included 1,056,961 people, of whom 907,888 were residents of North Carolina, and 149,073 were residents of Virginia. If the annual population growth rate

for North Carolina (1.4 percent) is projected to 1985 for Virginia and North Carolina combined, an increase more than 76,000 persons can be expected by 1985 within Hanging Rock State Park's sphere of influence.



* HANGING ROCK STATE PARK

RECREATION/HISTORIC FACILITIES

MAPPING

REGIONAL RECREATION CONTEXT

The North Carolina SCORP provides supply data for the market area around Hanging Rock State Park. It identifies the counties having geographic centers within fifty miles of the park, examines that portion of each county's population expected to use the various state parks within fifty miles of that county's center, and then allocates a portion of each park's acreage to each of those counties. By examining these figures, the available recreation acreages can be compared to the population of the counties within fifty miles of any park, and then be used to evaluate available recreation opportunities in the market area for that park.

The market area for Hanging Rock State Park includes nine counties in North Carolina (Alleghany, Davidson, Davie, Forsyth, Guilford, Rockingham, Stokes, Surry, and Yadkin) and five counties in Virginia (Carroll, Floyd,Franklin, Henry, and Patrick). Within these counties, which cover approximately 6448 square miles, the federal government operates the Blue Ridge Parkway, the Booker T. Washington National Monument, the Guilford County Courthouse National Military Park, the Philpott Reservoir, and a portion of the Jefferson National Forest.

The Commonwealth of Virginia operates Fairystone State Park and two Wildlife Management Areas in the five Virginia counties within the market area, along with one existing Natural Area, the Meadow Mountain Preserve. Five additional areas have been proposed as Natural Areas but have not been established. Two water-

ways have been recommended as Scenic Rivers: Cripple Creek, and Big Reed Island Creek. In Virginia, there are no designated scenic highways in the area and, even though the Dan and Mayo Rivers are under study, no waterways in the study area have been included in the Natural and Scenic Rivers System.

North Carolina operates three State Parks and one Scenic River within its nine counties in the market area: Hanging Rock State Park, Pilot Mountain State Park, Boone's Cave State Park and New River; although outside the area, Stone Mountain State Park has been included in the study due to its proximity, 45 miles. There are four State Gamelands in the area totalling over 8,000 acres, and although no State Natural Areas have been designated, twelve separate areas are under study for inclusion in that system. No State Trails have been officially designated, but the proposed mountains-to-sea trail corridor passes through the study area and includes some existing trails such as the Sauratown Trail, linking Hanging Rock State Park and Pilot Mountain State Park.

The 1980 population within the fourteen-county area was 1,056,961 people. Totalling the acreages allocated to Hanging Rock State Park's market area yields 19,864 acres available to serve that population. Therefore, within the fourteen-county market area for the park, State Parks provided recreation opportunities equal to 18.8 acres per thousand population. The SCORP standard for subclass Regional/State Park, which includes N.C. State Parks, is 15 acres per thousand people, and thus, the planning standard is presently satisfied. However, this standard

is relative rather than absolute and does not take all factors into account, such as land acquisition for the preservation of unique natural features. These additional acreage needs in the Hanging Rock State Park vicinity are discussed under the Land Acquisition section of this plan.

NATURAL RESOURCES ANALYSIS

PHYSIOGRAPHY AND GEOLOGY

The landforms in the Piedmont physiographic province around Hanging Rock State Park are the result of complex geologic processes. Between the latter stages of the Triassic period and the early stages of the Cretaceous period, the region was eroded to a low plain with a few isolated rocky mountains or monadnocks. The almost level was then lifted and tilted towards the southeast. Streams began to cut narrow, steep-walled valleys and erode the less resistant rock, gradually forming the sub-maturely to maturely dissected peneplain now existing. The Sauratown Mountains, a group of rocky hills, more resistant to erosion and the weathering process, rise above the surrounding land. The most dominant features in this range are Sauratown Mountain, Cook's Wall, Huckleberry Ridge, the Devil's Chimney, Wolf Rock, Hanging Rock Mountain for which the park is named, Moore's Wall, and Moore's Knob, the highest point in Stokes County.

The rock underlying Hanging Rock State Park was originally sedimentary rock (sandstone and siltstone) formed from sand and clay deposited in marine water in the late Pre-Cambrian period. These rocks were then changed in form -- the fine grain rocks becoming gneisses and schists and the sandstone becoming quartzite. This metamorphism was accompanied by notching and corrugation which was absorbed by the schists beneath the quartzite strata. Long periods of uplift and erosion have occurred since the Paleozoic period resulting in the present complex landscape.

Specifically, the park region is underlain with quartzite and quartz-muscovite or quartz-chlorite-muscovite schist. The

quartzite is fine to medium grained, light-colored, and often contains silvery-white muscovite. Small amounts of green chlorite and brownish-green or green biotite may be found in some areas with the quartzite. The schists are commonly a moderately coarse silvery-gray muscovite schist containing a considerable amount of quartz. In addition, brown to green biotite and, in some areas, green chlorite may be found in the schist, giving it a green tint.

Other rock types found in the park include quartz-mica-feldspar gneiss and a flexible sandstone (Itacolumite) with interlocking quartz and mica flakes particular to the Sauratown Mountains.

The Sauratown Mountains are capped by massive beds of quartzite more than 500 feet thick with thin layers of mica, quartz schist, and quartz-mica schist interbedded. The slopes are generally covered by colluvium, but are underlain by alternating quartzite and schist layers with schist becoming predominant at the base of the slopes.

A number of outstanding geologic features are located within the park. Significant amoung these are Hanging Rock and Moore's Knob, quartzite formations rising more than 200 feet above the surrounding ground, and Moore's Wall and Cook's Wall, spectacular escarpments of exposed quartzite found on two ridges within the park. Scenic cascades and water falls are also present, notably the Upper and Lower Cascades located on Cascade Creek, and Hidden Falls and Window Falls located on Indian Creek.

SOILS

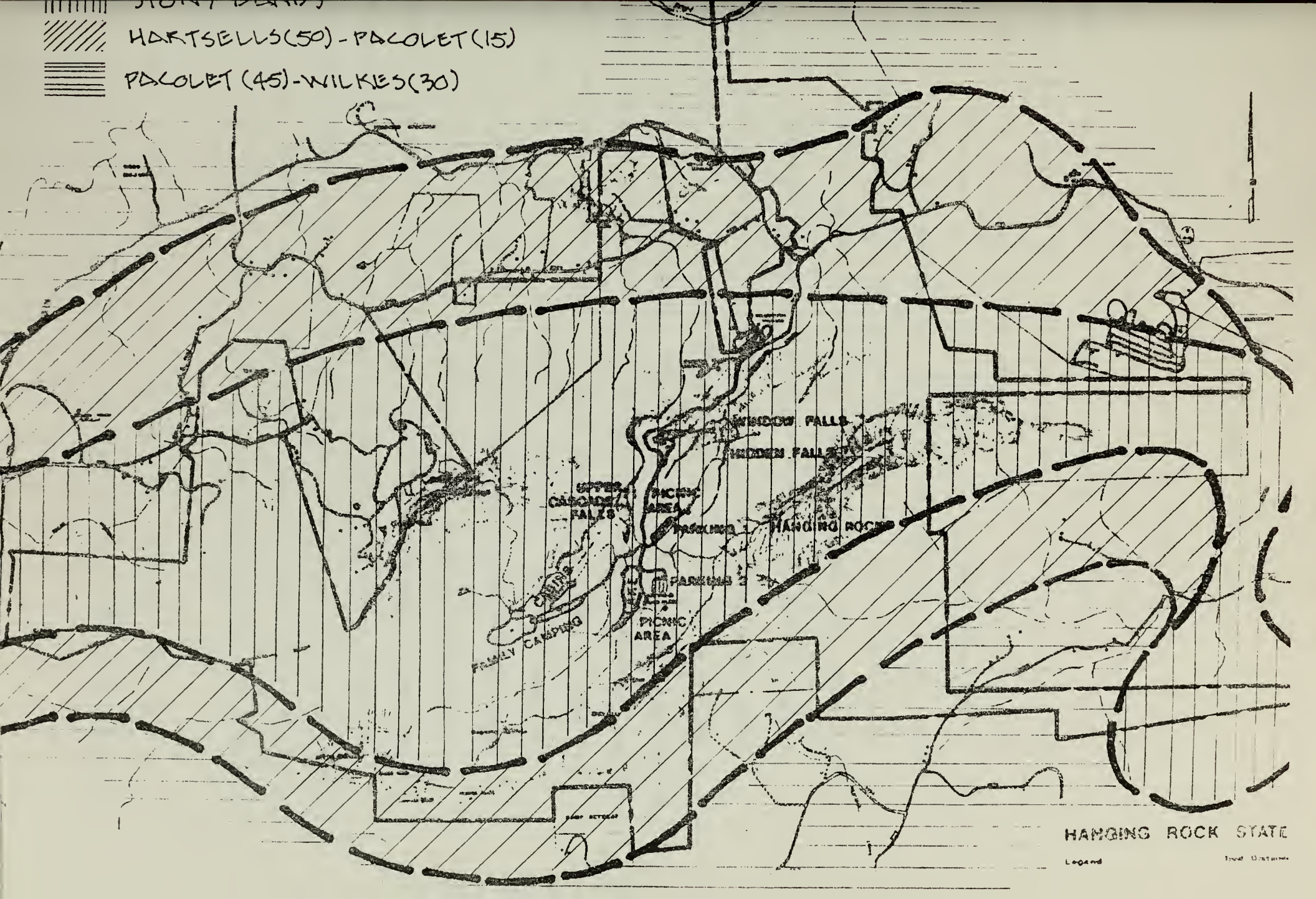
The soils within the park have not been examined in great etail, but three general soil types have been identified. The ajority of the park lies within the stony land classification escribed by the U.S. Department of Agriculture, Soil Conservation ervice as "soils that are stony or bouldery with rock outcrops nd ledges that have moderately permeable sandy clay loam to clay ubsoils; on very steep to moderately steep slopes." Because of he slope of the land and likelihood of rock at or near the sur- ace of the ground, development within soil of this type is everely restricted.

On the lower slopes around the park, soil classified as artsells (50)-Pacolet(15) exist and are described by the Soil onservation Service as "soils occasionally stony with moderately ermeable sandy clay loam to clay subsoils; on narrow, sloping enches and short moderately steep side slopes." This soil presents oderate to severe limitations for most development again due to lope and the existence of rock at or near the surface. However, rails may be developed on this soil type with only slight to oderate limitations.

The third type of soil within the park is Pacolet(45)- ilkes(30) which is characterized by the Soil Conservation Service s "soils with moderately permeable clay subsoils; on strongly loping, short very narrow ridges and moderately steep to very teep side slopes." Like the other soil classifications, devèlop- ent other than for non-intensive uses such as trails, is moderately

to severely limited.

In general terms, these soils are thin, relatively infertile, and depending on the slope, have a high potential for erosion. Thus, severe limitations are placed upon development, and great care must be exercised in the design and construction of new facilities as well as maintenance of the existing facilities.


HARTSELLS(50) - PACOLET(15)
PACOLET (45) - WILKES(30)
WINDOW FALLS
HIDDEN FALLS
UPPER CASCADE FALLS
PICNIC AREA
PARKING
HANGING ROCK
PARKING
PICNIC AREA
FAMILY CAMPING
HANGING ROCK STATE

HYDROLOGY

Of the major geologic formations in Stokes County, Hanging ock State Park is located in the type which yields the smallest mount of groundwater: the quartzite-schist formation. Even hough some water enters the groundwater supply by moving along uartz veins, the underlying rock structure is generally a poor quifer. However, it is possible for a well in this formation to yield as uch as 100 to 150 gallons per minute. The quality of the water rom wells in the park region varies greatly, with the poorest uality groundwater found at the foot of the Sauratown Mountains.

Most domestic water is obtained from dug or drilled wells, xcept where spring-fed streams can be impounded by small dams. he average well in the county produces 6 gallons of water per inute and is 123 feet deep. There are two water supply reservoirs ithin the park supplying water by gravity: one reservoir located n the eastern slope of Moore's Wall supplies the water used by ll park facilities, and the second reservoir, located west of ory's Den, supplies water to several houses along Mickey Road.

Surface water falling on or flowing from Hanging Rock State ark enters the dendritic drainage pattern of either of two major atersheds: the Dan River, part of the Roanoke River Basin, or he Yadkin River, part of the Yadkin-Pee Dee River Basin. Southwest f the park, water flows into the East Prong Little Yadkin River efore going into the Little Yadkin River and finally, the Yadkin iver itself.

Most of the creeks around the park direct water into the Dan iver, classified "A-II" waters suitable for drinking after approved

processing. North of the park, water is collected by Indian Creek, Cascade Creek and Vade Mecum Creek before entering the river. All three creeks are class "B" waters, suitable for bathing but not drinking, cooking or food processing. To the east, Flat Shoals Creek and Mill Creek channel water into the river; both are class "D" waters suitable only for agricultural uses such as irrigation and livestock watering but not for drinking or bathing. South of the park, Town Fork Creek and Neatman Creek, both Class "C" waters suitable for fishing, boating and wading but not drinking or bathing, direct water to the Dan River.

CLIMATE

The climate of Hanging Rock State Park is relatively moderate with the typical humid summers and mild winters of the Piedmont region. The average annual temperature is 58.8°F (14.9°C) with the average minimum winter temperature being 27°F (-2.8°C) and the average maximum summer temperature being 86°F (30°C). January is the coldest month, when the monthly temperature averages 40.6°F (4.8°C); July, when the temperature averages 77.8°F (25.4°C) is the warmest month. The average number of frost-freeze days in the Sauratown Mountains area is 175, from April 23 to October 15.

The average yearly rainfall amounts to 44.13 inches (112.1 cm.). July is the wettest month, when rainfall, mostly from thunderstorms, amounts to 4.98 inches (12.6 cm.); November, with only 2.41 inches (6.1 cm.) of rainfall, is the driest month. Snow averaging 9.6 inches (24.4 cm.) annually may fall anytime from November through March, but is most likely in January and February.

Prevailing winds in the Sauratown Mountains are from the southwest during spring, summer, and winter, and from the northeast during the fall. The average windspeed at the earth's surface is 8.7 miles per hour (13.9 km) .

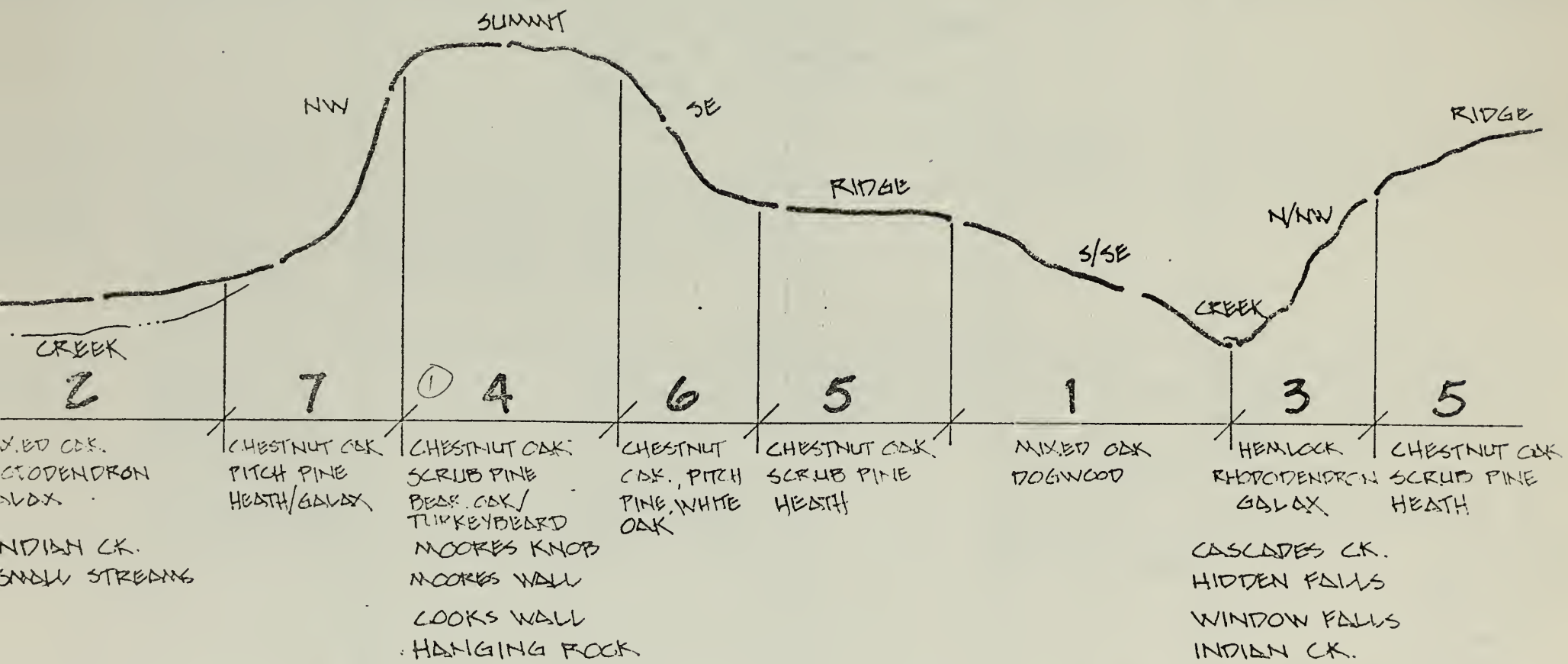
Clear skies occur approximately 117 days a year with the greatest number occurring in late fall. Relative humidity averages about 67 percent annually with the highest humidities occurring in late summer and early fall.

FOREST TYPES AND ASSOCIATED CONDITIONS

The vegetation of Hanging Rock State Park is characteristic of a Chestnut Oak-Scarlet Oak-Heath forest. Seven different communities appear within this forest type, indicative of variations in soil and moisture compared with topographic position and slope orientation. The general forest communities are: chestnut oak-scarlet oak-white oak-dogwood, mixed oak-rhododendron-galax, hemlock-rhododendron-galax, chestnut oak-scrub pine-bear oak/turkey beard, chestnut oak-scrub pine-heath, chestnut oak-pitch pine-white oak, nd chestnut oak-pitch pine-heath/galax. The canopy and understory species vary through these forest communities and have been differentiated by typical cross-sectional studies of each community.

Chestnut Oak-Scarlet Oak-White Oak-Dogwood Community

This mixed oak-dogwood forest community is so named due to the dominance of chestnut oak (*Quercus prinus*), scarlet oak (*Quercus coccinea*), and white oak (*Quercus alba*) in the canopy, and dogwood (*Cornus florida*)in the subcanopy. In addition, red maple (*Acer rubrum*), pignut hickory (*Carya glabra*), tulip tree (*Liriodendron tulipifera*), black gum (*Nyssa sylvatica*), pitch pine (*Pinus rigida*), Virginia pine (*Pinus virginiana*), Red oak (*Quercus rubra*), and black oak (*Quercus velutina*) are occasionally found in the canopy. Sassafras (*Sassafras albidum*) and umbrella tree (*Magnolia fraseri*) are commonly found in the subcanopy, and rhododendron (*Rhododendron*



VEGETATION
GENERAL CROSS-
SECTION

SLOPE	10°-25°		25°-35°	12°-24°		0°-29°	11°-23°
ELEVATION	1600'-1800'	1100'-1700'		1700'-2500'		1200'-1900'	1200'-23c
SOIL	PACOLET	CHEWACLA	EXPOSED ROCK SHELVES AND OUTCROPS AT OR NEAR THE SURFACE	SHALLOW SANDY, LARGE AREAS OF BARE ROCK		PACOLET	PACOLET
ASPECT	S TO SE		N		S TO SE	S TO SE	NE TO NW
GENERAL LOCATION	BASE OF MODERATE SLOPE TO STREAMS; ALONG DRAINAGEWAYS	FLAT STREAM BANKS; ALONG SMALL RUNS	STEEP ROCKY BANKS AND FALLS				
SPECIFIC SITES	SLOPES TO CASCADE CK. ABOVE LAKE; SE SLOPE FROM WOLF ROCK; S SLOPE FROM HANGING ROCK.		UPPER CASCADES HIDDEN FALLS & WINDOW FALLS N SLOPE TO CASCADE CK. CROSSED BY PARK ROAD	MOORE'S KNOB MOORE'S WALL COOK'S WALL	SE SLOPE FROM MOORE'S WALL, WOLF ROCK & HUCKLEBERRY RIDGE; S SLOPE AT BASE OF HANGING ROCK BLUFF	S BASE SLOPES FROM HANGING ROCK & WOLF ROCK, CAMP TO CASCADE CK. & ENTRANCE TO INDIAN CK.	NW SLOPE FROM WOL ROCK & COO WALL TRAIL HANGING F RIDGE TO INDIAN CK NW SLOPES FROM PARK TO CASCADE NE FROM COOKS [illegible] DEVIL'S CHIMNEY & MOOR KNOB
GENERAL COMMENTS	DRY MESIC MOISTURE REGIME; WELL DEVELOPED SOIL WITH ROCK WITHIN 25 CM OF	DEEPEST SOIL IN PARK	TRANSITIONAL BETWEEN MESIC & XERIC COMMUNITIES; DOMINATED BY SHRUBS; SPARSE HERB LAYER	TRUE XERIC COMMUNITY, SUBCANOPY NOT WELL DEVELOPED, SPECIES DIVERSITY LOW	EVEN AGE OAK & PIGNUT HICKORY FROM OPEN CANOPY WITH GRASSY COVER & SCATTERED [illegible]	DRIER SLOPES, REPRODUCTION GOOD; FOREST FLOOR GENERALLY OPEN	MOISTER SLOPES; REPRODUCT GOOD

nudiflorum) and gooseberry (Vaccinium stamineum) are present throughout this forest community.

The oak-hardwood forest occupies a landscape position from the base of moderate slopes to streams or drainage ways in elevations ranging from 1600-1800 feet. Slope is not a major influence upon this community's distribution since it is found on slopes of 22% to 55% having both northwest and southeast aspects. Soils here are classified broadly as Hartsells stony fine sandy loam and are acidic, well drained, and moderately permeable.

Mixed Oak-Rhododendron-Galax Community

As in the mixed oak - dogwood community, oaks dominate the mixed oak-rhododendron-galax community. Here, chestnut oak (Quercus prinus), scarlet oak (Quercus coccinea), white oak (Quercus alba), and black oak (Quercus velutina) comprise a large part of the canopy along with red maple (Acer rubrum), mockernut hickory (Carya tomentosa), tulip tree (Liriodendron tulipifera), black gum (Nyssa sylvatica), pitch pine (Pinus rigida), and sycamore (Platanus occidentalis). The understory largely consists of sourwood (Oxydendrum arboreum), dogwood (Cornus florida), red maple (Acer rubrum), and black gum (Nyssa sylvatica). Occasionally found in the understory are umbrella tree (Magnolia tripetala and fraseri), cherry birch (Betula lenta), American holly (Ilex opaca), and tulip tree (Liriodendendron tulipifera). In addition, mountain laurel (Kalmia latifolia) and rhododendron

(Rhododendron nudiflorum) are constants in the shrub layer, along with an abundance of rhododendron (Rhododendron maximum), witch-hazel (Hamamelis virginiana), tag alder (Alnus serrulata), black highbush blueberry (Vaccinium attrococcum), fringetree (Chionanthus virginicus), spicebush (Calycanthus floridus), and(Viburnum cassinoides). Throughout this community galax (Galax aphylla) is widely distributed in the herb layer.

Mixed oak-rhododendron-galax communities are found on level stream banks and moist locales between 1100 and 1700 feet where the soils, formed from alluvium, are well drained and moderately permeable.

Hemlock-Rhododendron-Galax Community

The hemlock rhododendron-galax community is a distinctive community, as well as a transition zone between mesic and xeric groups of community-types. Many species of the mesic group are absent or rarely present, and the species associated with the xeric group are not widely distributed.

Commonly found in the canopy of this forest is Carolina hemlock (Tsuga caroliniana) with chestnut oak (Quercus prinus), scarlet oak (Quercus coccinea), red maple (Acer rubrum), pitch pine (Pinus rigida), and table mountain pine (Pinus pungens) observed occasionally in the canopy. The understory is composed of American holly (Ilex opaca), umbrella tree (Magnolia fraseri), tulip tree (Liriodendron tulipifera), and cherry birch (Betula

lenta). Species which commonly appear throughout this community include rhododendron (Rhododendron catawbiense and maximum) in the shrub layer and galax (Galax aphylla) in the herb layer. In addition, tag alder (Alnus serrulata), spicebush (Calycanthus floridus), witch-hazel (Hamamelis virginiana), and viburnum (Viburnum cassinoides) are prevalent in the shrub layer.

The hemlock-rhododendron-galax communities are located on steep slopes near Moore's Wall and on the rocky banks of streams and waterfalls where slopes range from 55% to 78%. The soils are normally shallow and moist, and bedrock is either exposed or very near the surface.

Chestnut Oak-Scrub Pine-Bear Oak/Turkeybeard Community

The open canopy of this xeric community is dominated by chestnut oak (Quercus prinus) and Virginia pine (Pinus virginiana). Species found in both the canopy and the poorly-developed subcanopy include red maple (Acer rubrum), black gum (Nyssa sylvatica), sourwood (Oxydendrum arboreum), pitch pine (Pinus rigida), table mountain pine (Pinus pungens), scarlet oak (Quercus coccinea), black jack oak (Quercus marilandica), and Carolina hemlock (Tsuga caroliniana). The shrub layer is dominated by blueberry (Vaccinium vaccillans) and gooseberry (Vaccinium stamineum), serviceberry (Amelanchier arborea), black huckleberry (Gaylussacia baccata), mountain laurel (Kalmia latifolia), rhododendron (Rhododendron catawbiense), and sassafras(Sassafras albidum).

Distinctive of this community are bear oak (Quercus ilicifolia) and turkeybeard (Xerophyllum asphodeloides). Bear oak is a shrub or small tree found on Moore's Knob and Moore's Wall at an elevation of 2500 feet. The bear oak here is at the southern limits of its range and is the largest population of the species in North Carolina. Turkeybeard is a perennial also found on Moore's Knob and Moore's Wall, as well as on the slopes and ridges above Cascade Creek.

The chestnut oak-scrub pine-bear oak/turkeybeard community is found on slopes of 27% to 53% at elevations of 1700 to 2500 feet where there are large areas of exposed rock or where the soil is poorly developed, shallow, and sandy.

Chestnut Oak-Scrub Pine-Heath Community

The vegetation of this community is similar to that of the chestnut oak-scrub pine-bear oak/turkeybeard, except for the absence of bear oak (Quercus ilicifolia), turkeybeard (Xerophyllum asphodeloides), rhododendron (Rhododendron catawbiense), Carolina hemlock (Tsuga caroliniana), and galax (Galax aphylla). New species found in the canopy within this community are persimmon (Diospyros virginiana), pignut hickory (Carya glabra), and mockernut hickory (Carya tomentosa). In the understory, Hercules club (Aralia spinosa) is a species found in this community, but not in the chestnut oak-scrub pine-bear oak/turkey beard community.

Like the previously described community, the chestnut oak-scrub pine-heath community appears in areas of exposed rock or shallow, sandy, poorly developed soils between the elevations of 1700 and 2500 feet where the slope ranges from 27% to 53%.

Chestnut Oak-Pitch Pine-White Oak Community

Found in the canopy of this forest are pitch pine (Pinus rigida), Virginia pine (Pinus virginiana), chestnut oak (Quercus prinus), white oak (Quercus alba), and occasionally mockernut hickory (Carya tomentosa), table mountain pine (Pinus pungens), and scarlet oak (Quercus coccinea). Trees important in the sub-canopy include blackjack oak (Quercus marilandica), mockernut hickory (Carya tomentosa), scarlet oak (Quercus coccinea), and in the lower strata, black oak (Quercus velutina). The floor of the forest in this community is relatively open, but with St. Peter's wort (Hypericum stans), American holly (Ilex opaca), rhododendron (Rhododendron maximum), bristly locust (Robinia hispida), dwarf locust (Robinia nana), and mountain camellia (Stewartia ovata) appearing occasionally. In addition to these species, dogwood (Cornus florida) and rhododendron (Rhododendrom nudiflorum) appear and are important in distingusishing this forest type.

The chestnut oak-pitch pine-white oak communities are located on the drier south and southeast-facing slopes of the park between the elevations of 1200 and 1900 feet. This community usually prefers slopes of 24% to 51% and deep, well drained soil, although

it appears in areas where the bedrock exists near the surface.

Chestnut Oak-Pitch Pine-Heath/Galax Community

Dominating the canopy here are chestnut oak (Quercus prinus) and pitch pine (Pinus rigida); found occasionally are red maple (Acer rubrum), black gum (Nyssa sylvatica), table mountain pine (Pinus pungens), and black oak (Quercus velutina). The subcanopy and lower strata are similar, including umbrella tree (Magnolia fraseri), scarlet oak (Quercus coccinea), and sassafras (Sassafras albidum). The dense shrub layer includes black huckleberry (Gaylussacia baccata), fetter-bush (Leucothoe racemosa), trailing arbutus (Epigaea repens), witch-hazel (Hamamelis virginiana), mountain winterberry (Ilex ambigua var. mountana), rhododendron (Rhododendron maximum), bristly locust (Robinia hispida), dwarf locust (Robinia nana), mountain camellia (Stewartia ovata), and mapleleaf viburnum (Viburnum acerifolium). Again galax (Galax aphylla) is constant throughout the herb layer.

The chestnut oak-pitch pine-heath/galax communities occupies the moister northeast and northwest slopes between the elevations of 1200 and 2300 feet. The land here is steep, sloping from 24% to 51%, and the soil, as described in the previous community, is deep and well drained with bedrock near the surface in some areas.

Rock Outcrop Areas

Rock outcrops are found on the steep ridges and peaks and in lower regions within the park having a recent past history of fire. Colonies of plants adapted to generally xeric, low nutrient, acid conditions inhabit these exposed rocks areas.

The factor which is critical for outcrop flora establishment is soil accumulation (Oosting and Anderson, 1937). Cracks and depressions in the rock accumulate mineral and organic material transported by wind, water, and gravity. After sufficient build-up, a number of species may invade, including *Hypericum gentianoides*, *Diodia teres*, *Saxifraga michauxii*, *Danthonia spicata*, *Panicum* and *Arenaria groenlandica var. groenlandica.*

Succession on the bare rock follows a well-known pattern for many such outcrops (Oosting and Anderson 1937; McVaugh, 1943; Taggart, 1973). The typical succession sequence is: lichens ⟶ mosses ⟶ herbaceous annuals ⟶ herbaceous perennials woody shrubs ⟶ pines-cedar ⟶ hardwoods. Typical representatives of these stages include: *Parmelia* sp., *Polytrichum* sp., *Grimmia laevigata*, *Hypericum gentianoides*, *Arenaria groenlandica*, *Danthonia spicata*, *Andropogon scaparius*, *Xerophyllum asphodeloides*, *Rhus copallina*, *Chionanthus virginica*, *Juniperus virginiana*, *Pinus virginiana*, *Carya tomentosa*, and *Quercus prinus*.

Seepage areas occur at locations along the outcrop interface with the forest area. Such sites can be very moist and almost boggy as indicated by *Sphagnum* sp., *Polytrichum commune*, and

Saxifraga michauxii. Outcrop communities often develop in concentric rings, with the most advanced successional stage in the center, and the soils are typically thin and poorly developed.

FAUNA

There is little data available on either the common or unusual fauna of Hanging Rock State Park. However, according to Dr. John E. Cooper, Director of the Research and Collections Section of the North Carolina State Museum of Natural History, animals of some rarity are known to exist in the park and the surrounding area.

The park is the only known location in the state for Wehrle's Salamander (*Plethodon wehrlei*). The area is a potential habitat for the Bog Turle (*Clemmys muhlenbergi*), the Coal Skink (*Eumeces anthracinus*), and the Four-toed Salamander (*Hemidactylium scutatum*), but no specific habitats for these species have been located. In addition, the park may be a habitat sympatry for the Eastern Milk Snake (*Lampropeltis t. triangulum*) and the Scarlet Kingsnake (*Lampropeltis t. elapsoides*). Because the park encompasses the Dan River and sections of low magnitude streams in the Dan River system, a species of special concern, Roanoke Hog Sucker (*Hypentilium roanokense*), which may occur within the park has been identified along with the following species of concern: Cutlips Minnow (*Exoglossum maxillinqua*), Bigeye Jumprock (*Moxostoma ariommum*), Orangefin Madtom (*Noturus gilberti*), Roanoke bass (*Ambloplities cavifrons*), and Riverweed Darter (*Etheostoma podostemone*).

More basic data are essential in order to effectively protect and/or manage the fauna within the park, and for this reason a team of biologists should conduct a thorough study of Hanging Rock State Park.

SITE ANALYSIS

HISTORY

The first settlers to enter what is presently Stokes County traveled south from Pennsylvania and Virginia along "The Great Wagon Road " and many, satisfying their wish to own land, settled in the rich bottomland in the Town Fork Creek area. These settlements were well established prior to 1752 when Moravians entering the area found dwellings along Town Fork Creek from the Dan River to an area west of present-day Germanton.

Two Indian tribes also inhabited this area during the same period. The Sauras, after whom the Sauratown Mountains are named, were a peaceful tribe dwelling in Stokes County. To the east, in Surry County, early settlers encountered a hostile Cherokee Indian tribe. Not until the end of the French and Indian War in 1763 did the threat of Indian attacks disappear.

British troops did not appear in the Stokes County area until late in the Revolutionary War, but there were conflicts with the Tories, including a legendary incident for which a section of the park is named. The Tory's Den area was so named after a group of Tories supposedly captured the daughter of a member of the Whig Party living nearby and held her in a cave (Tory's Den) in an attempt to gain aid for their cause. However, historians have proved that this incident never occurred.

Following the Revolutionary War, Stokes County was formed from Surry County in 1789, and an agrarian tobacco-based economy developed. After the Civil War, attention focused upon the mineral springs in the Sauratown Mountains. The affluent came to resorts such as Moore's Springs and Piedmont Springs to enjoy the

mountains and the mineral springs, but by the 1930's the popularity of the resorts had waned.

On April 20, 1936, the deed for the first tract of Hanging Rock State Park was executed after the State of North Carolina received a gift of more than 3,000 acres in the Sauratown Mountains.

This gift came from the Stokes County Committee for Hanging Rock State Park, a citizens group working through the Winston-Salem Foundation. In the late 1920's and early 1930's, and before this donation, the majority of the merchantable timber had been removed from the land. Following this logging, the U. S. Forest Service considered designating the area as a National Forest. However, this concept was abandoned due to the high price asked for the farmland.

The first construction began in Hanging Rock State Park on July 2, 1935, with the arrival of an advance detachment of the Civilian Conservation Corps (CCC) under Frank P. Shore. The CCC was a federal program in which thousands of unemployed men were put to work in natural resource conservation and development projects throughout the country. By June, 1936, one mile of entrance road had been graded, and construction had begun on a concrete dam and earth dam.

The CCC continued park development and, upon completion of the earth dam and concrete dam in the summer of 1938, a twelve-acre lake was created. In addition, a large stone bathhouse with checking facilities for 1,000 people, a large diving tower and a sand beach with protected water area in front of the bathhouse were constructed. Workers also completed the upper link of

a park road leading to the lake, a 100-car parking area near the bathhouse, a concrete dam impounding 500,000 gallons of water to provide pure water, two miles of water line and a large sewage disposal system to serve the bathhouse and proposed buildings. On one of the main ridges, a large picnic shelter, men's and women's toilets, sewage disposal system, barbecue shelter, tables, benches, and drinking fountains were also constructed.

In March, 1942, the CCC workers at the park were transferred to a military area, and development nearly stopped; however, construction had progressed steadily until this time. Major accomplishments included construction of a 350-car parking lot and completion of a road and bridge leading to a proposed cabin area. The CCC also developed more picnicking facilities, constructed stone guard rails along the park road, installed permanent concrete road drainage gutters, and planted native trees and shrubs around buildings as well as along roads and trails. In addition, 168 acres of land were added to the park at a cost of $4.00 per acre.

An intensive maintenance program began in October, 1945. Repairs were made with available funds on buildings, water systems, sewer systems, roads, trails, and the swimming beach. Also in the fall of 1945, the CCC camp was renovated and converted to a group camping area, and the Highway and Public Works Commission paved a portion of the park road. In late April, 1946, a serious forest fire burned over 300 acres within the park and 600 adjacent acres. Also in 1946, a boundary line dispute arose between the

State and the Stokes Lumber Company, which had purchased timber rights on lands of the J. Spot Taylor estate adjoining the park. The dispute could not be easily settled and an arbitration board was appointed in order to reach a compromise. Timbering in the disputed area was stopped, and after further land acquisition by the State, the boundary line in question was eventually accepted by all parties.

A major obstacle to park development in the early years was the State's inability to acquire land needed for safe access. The existing park road was dangerous, narrow, and passed through private property. This problem was partially alleviated in 1948 when the Highway Commission relocated and paved the county road serving the park. However, this action resulted in the park entrance being relocated to its present location off of Moore's Spring Road. The road has since been upgraded to provide safe access into the park.

The development of recreational facilities continued as attendence figures rose steadily over the years. In 1948, water recreation was enhanced when 14 rowboats were provided for public use. Completion of construction of six cabins, tent and trailer campgrounds, the boathouse,and enlargement of the bathhouse in 1954 expanded the park facilities. Additional improvements came between 1964 and 1966, with the construction of a 35-site camping area and washhouse, and the paving of the camping area access road.

Land acquisition has been another important phase of park improvement as additional lands were required for development and for scenic protection. From the park's inception in 1936 with the

original deed for 3,096 acres, approximately 2,762 acres have been added to the park for both public use and preservation.

ADJACENT LAND USES AND DEVELOPMENT PRESSURES

Hanging Rock State Park is located in a rural setting, surrounded by woodland and agricultural fields. The park extends to within 1500 feet of the town of Danbury at one point, but the main park entrance is slightly over three miles by road from the town. Most park facilities are situated in a bowl-like area rimmed by Moore's Knob and Wall, Cook's Wall, and Hanging Rock Ridge. Most of the land within these features is publicly owned, but public ownership does not include enough of the actual features to ensure protection from encroaching development, particularly at Moore's Wall and at the peripheral use areas: Tory's Den, Indian Creek, and the Lower Cascade Falls.

These use areas, although contiguous to the main park, are sufficiently separated from the main park to be open to unauthorized access. This uncontrolled access is fostered by the secondary road system which cuts through the park in at least four locations, opening these areas to vandalism and other undesirable uses.

The majority of land surrounding Hanging Rock State Park is heavily wooded, but agricultural and residential uses are gradually replacing the undeveloped wooded areas. Cropland and pastureland occury most of the lower, flatter ridges and slopes outside the park, with the steeper side slopes reserved for woodland or timberland. These slopes,however, are under pressure from residential developers because of the very characteristics which make them desirable for parkland: heavily-wooded slopes with hardwood forests, rich loamy soils, pockets of mountain laurel and rhododendron thickets, and outstanding vistas when some trees are selectively cut.

Between the town of Danbury and the park, a subdivision has begun on the lower slopes of the ridge which terminates at the Hanging Rock. Another subdivision of primarily second homes

has been developed on the steep slopes at the base of Moore's Wall. These developments could, conceivably, be expanded in the future, adversely impacting the visual and natural qualities that make the area so desirable.

Most of the agricultural land around the park does not adjoin the park land, but spreads out on the flatter land along the road system. The soil and slope conditions in the area surrounding the park indicate that much of the currently wooded land could be timbered and converted to farmland. Agricultural uses are generally compatible near parkland; however, when the development of any land use negatively impacts the natural features or their immediate surroundings, that compatibility is destroyed.

Other land uses in the area include commercial, institutional and office activities. All commercial ventures normally associated with small towns appear in the area around the park, ranging from gas stations to restaurants. The institutional uses are represented by the Stokes County Prison Unit near the town of Meadows, the courthouse in Danbury, and the Stokes-Reynolds Hospital, located one-and-a-half miles from the park. In addition, there are roadside parks including the Moratock Park along the Dan River in Danbury.

The Dan River runs through Stokes County from northwest to southeast, passing through park for a short distance. Twenty-seven miles of the river were dedicated and officially opened to the public as the Dan River Canoe Trail on October 20, 1979. The section included in the canoe trail runs from Jessup Mills, northwest of Hanging Rock, to the Moratock Park at Danbury.

The Sauratown Trail, a hiking and horseback riding trail, was officially dedicated and portions opened to the public on October 28,

1979. From Hanging Rock State Park, the trail crosses Sauratown Mountain, enters Pilot Mountain State Park, and follows a trail through the park to the Yadkin River. Eventually the trail will extend from the Dan River to the Yadkin River, allowing over 30 miles of hiking and horseback riding through mainly undeveloped areas of Stokes and Surry counties.

Both the Dan River Canoe Trail and the Sauratown Trail have been developed through the efforts and cooperation of local citizens, the Northwest Environmental Preservation Committee, Sauratown Trail Committee, the N. C. Trails Committee, the Northwest Piedmont Council of Governments, and the N. C. Division of Parks and Recreation.

Hanging Rock State Park Use

Between June 30 and July 9, 1979, a park user survey was conducted in Hanging Rock State Park. This period included July 4, one of the two peak use days in the recreation year, the other peak use day is Labor Day. The overall park attendance on July 4 was 2,732 people, twice that on any other day during the 10-day survey period. Total attendance during the survey was 12,688. The survey showed that 5 percent of the park visitors came from states other than North Carolina, and that 9.2 percent of the out-of-state visitors were from Virginia.

According to actual count, over 4,300 vehicles circulated through the park during the survey period, carrying an average of 2.95 people per vehicle. Overall, 690 vehicles were stopped when exiting the park and the drivers interviewed. According to responses (Appendix 1), the activities most frequently participated in were, in decreasing order: swimming, picnicking, sightseeing, hiking, camping, boating, nature walks, fishing, and bicycling.

During the years between January, 1969 and December, 1980, total park attendance fluctuated over a wide range. In 1969, total park attendance was 164,804 persons. Visitation fell to 130,352 in 1970, increased steadily to 252,081 during 1972, dropped slightly to 206,532 in 1974, and increased significantly to 287,498 during 1975. In 1976 visitation dropped to 204,474 and decreased again in 1977 to 170,630; during 1978, park usage again increased significantly to 230,996 persons. The total attendance for 1979 was 218,612 and for 1980, 275,000.

The long-term tendency of public use at Hanging Rock State Park is for continued heavy use and probable increased use. The effects on the natural features and man-made facilities will be substantial even if the intensity of use stabilizes; if park visitation continues its uphill trend, the signs of deterioration already evident in the existing park facilities and features will be accelerated.

DEVELOPMENT PRESSURES

ADJACENT LAND USES

MAP

EXISTING SITE CONDITIONS

Hanging Rock State Park was established and developed to accomplish certain goals based on the proximity of natural features in this area. These goals are stated as the principles and purposes of the State Park system, and include: preserving and protecting natural areas of unique or exceptional scenic value; providing recreational use of those natural resources through outdoor recreation in natural surroundings; interpreting the natural features and processes present in the park; and preserving, protecting, and portraying scientific sites of statewide importance.

The more than 5,700 acres within Hanging Rock State Park protect the beauty and natural resources of a portion of the Sauratown Mountains while providing a large natural recreational area for both the local rural population and nearby urban population. The original development concept for the park was based on providing the land and facilities for recreation use while minimizing the impacts on the natural conditions and processes existing in the area. This was accomplished by providing one entrance road into a centralized series of use areas situated inside the "bowl" formed by the Hanging Rock Ridge, Moore's Wall, and Cook's Wall. By keeping the major recreation areas and activities close together, desirable results were obtained: one water source supplies all the separate areas by gravity flow ; the low-density development has minimal visual impact, particularly when viewed from the major natural features; operation and maintenance costs were reduced due to the linear access and compact use areas; and finally, similar uses and facilities, designed and built relatively near each other, left the majority of the park in a natural state. This design concept results in a central park activity zone and

peripheral use areas separated from the main park.

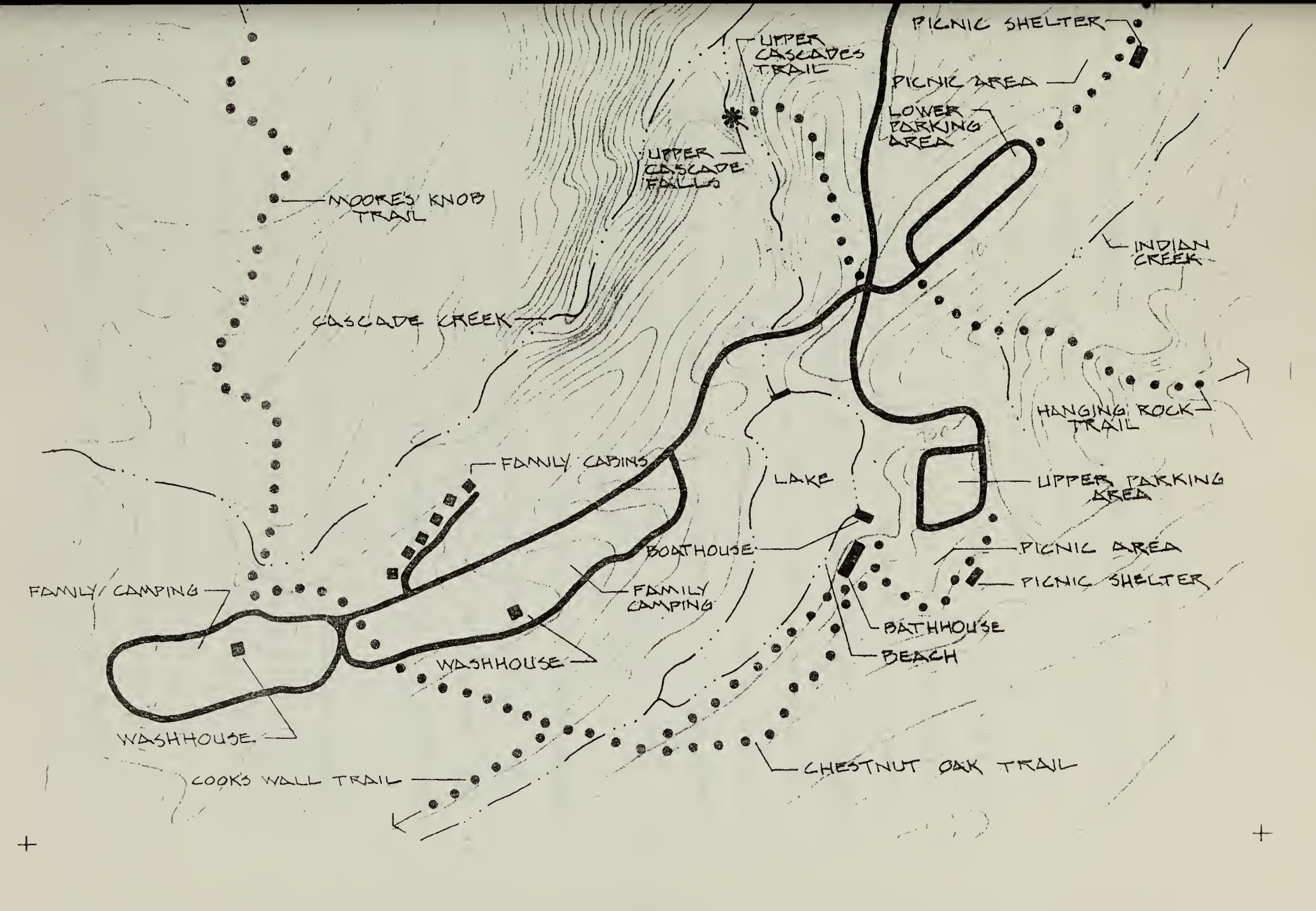
Central Park Activity Zone

This zone includes all the use areas and facilities inside the bowl formed between Hanging Rock, Moore's Wall, and Cook's Wall. Most of the park's day use and all of the overnight uses, except for the backcountry camping, occur in this zone.

The main park entrance is located at the intersection of the Hanging Rock Park Road and S.R. 1001 or Moore's Springs Road approximately 1.5 miles from the Stokes-Reynolds Memorial Hospital located on N.C. 8-89 west of Danbury. Traffic entering or leaving the park on the Hanging Rock Park Road is not required to stop at the intersection, and thus, traffic moves smoothly in both directions.

Following the entrance road into the central activity zone, the visitor can see how the roadbed was carefully fitted into the topography. Vegetation has covered the marks left by construction in most places; however, in a few locations, unappealing cut banks are visible.

Approximately 3,200 feet past the entrance, a gravel road leading west to the organized group tent camp often goes unnoticed by the casual park visitor. This area accommodates large groups which cannot be handled in one family campground site or are incompatible with the family campground concept. The only facilities provided are a car and bus parking area, tent campsites, water, and pit toilets. In the past, group camps have been subjected to degradation by the users, i.e., cutting down trees, erosion, and compaction; in addition, group activities tend to be noisy and last later into the night than those in the family camping areas. This location is good in that the camp is separated from the family overnight areas and is close to the entrance. However, it is close to privately-owned property and residences, and has insufficient buffer land and vegetation to provide privacy for the campers. In addition, an old road allows unrestricted access to the park near the group activity area and the facilities further along the entrance road.


PICNIC SHELTER
UPPER CASCADES TRAIL
PICNIC AREA
LOWER PARKING AREA
UPPER CASCADE FALLS
MOORE'S KNOB TRAIL
INDIAN CREEK
CASCADE CREEK
HANGING ROCK TRAIL
FAMILY CABINS
LAKE
UPPER PARKING AREA
BOATHOUSE
PICNIC AREA
PICNIC SHELTER
FAMILY CAMPING
FAMILY CAMPING
BATHHOUSE
BEACH
WASHHOUSE
WASHHOUSE
CHESTNUT OAK TRAIL
COOK'S WALL TRAIL

Another gravel road turning to the west about 200 feet past the group camping area leads to the park ranger residences and the summer employee's barracks. There are three residences here for the rangers and their families, and the personnel barracks, which can accommodate 12 people.

At an intersection about 4,000 feet past the residence area, a paved road turns east to the park office and the maintenance area. A small area in front of the office provides about eight parking spaces for visiting the office or using the telephone. The parking area curbing is natural stone laid in mortar, matching the type of materials used by the CCC labor in the rest of the park facilities. The shallow soils have contributed to slight erosion around the walkway from the parking area to the office, but natural vegetation makes the entire area attractive.

The Park Superintendent's residence is also in this complex, along with the maintenance area which includes a garage, shop building, small warehouse, and yard area. These buildings have been well-maintained, but both the warehouse and the garage need extensive roof repairs.

About 2,000 feet past the park office intersection another intersection allows the park visitors to drive into the parking lot for the Lower Picnic Area to the east, or the overnight use areas to the west. More than 60,000 people picnic in the park each year, making it the most intensive activity within the park. This picnic area, the first of two, is served by a

450-car parking area, and includes two large stone and timber picnic shelters built by the CCC in addition to stone toilet buildings, approximately 60 picnic tables, and 15 outdoor cooking grills.

Intensive use through the years has compacted the soil throughout the picnicking area and along the trails leading to two of the natural features within the park: Hidden Falls and Window Falls. In the past two years, the Young Adult Conservation Corps (YACC) has done restoration work along these trails by installing water bars, grading the trail tread so water can flow off without eroding the soil, and by building timber steps in the steepest areas experiencing the worst erosion.

The road to the west of this intersection carries the park user past the hiking trail to the Upper Cascades, over Cascade Creek, and up a long ridge leading to the cabins and tent and trailer camping areas. The overnight use area was located to separate that use from the high turn over day uses, but close enough to the picnic areas and trails so that campers can use them easily.

The six rental cabins architecturally reflect the character of the park through their rustic appearance, although they contain all modern conveniences. They receive heavy use throughout their rental period, which is by the day or week from April to the first Monday in June, and from Labor Day to November 1, and weekly from June to Labor Day. The cabins are not winterized, so they are closed from November through March. The cabins were built in 1954 and have been well-maintained since; however, the landscape immediately surrounding the cabins is badly compacted and eroded from constant foot traffic and uncontrolled vehicular access and parking.

The other overnight use along this spur road is tent and trailer camping. There are two one-way camping loops containing and two washhouses and 74 campsites that accommodate tents, trailers, or camping vehicles. Since they are used by more than 20,000 campers each year, the wooded campsites, like the cabin sites, show signs of erosion and compaction. Some of these problems are being solved by the park staff and the YACC staff in the park. Bollards and timber edgings are being placed to help define the parking areas, outdoor grills are being repaired, and tent pads and tables rebuilt or replaced as necessary. The next step will be to rehabilitate the areas affected by the compaction and sheet erosion which has reduced the amount of topsoil necessary for vegetation. Replacing the vegetative buffers between the campsites will restore them to their original privacy and isolation.

Continuing along the main access road through the central activity zone, the park visitor rounds a curve giving a partial view of the twelve-acre lake and the large bathhouse. Vegetation has grown along the road shoulder and the lower shrubs in this area inhibit a beautiful vista across the water to the stone bathhouse and swimming beach.

The road terminates in a 350-space parking area serving the Upper Picnic Area, the bathhouse, the boathouse, and the trailhead of the main park trail system. The Upper Picnic Area is spread out along the hillside southeast of the parking area, and includes a large stone and timber picnic shelter, toilet buildings, 60 picnic tables, and 15 outdoor grills. As in the other heavily used areas, the effects of long-term use are shown by erosion of the soil on the hillside, compaction of the remaining soil, and deterioration in the quality of the formerly wooded and shrub-covered picnicking spaces. The park staff and YACC members are rehabili-

tating the entire picnicking area by repairing the existing stone walls, using large treated timbers to form platforms for the picnic tables and grills, building steps and pathways to define the areas intended for public use, and replacing the natural vegetation which has gradually disappeared through continuous public use.

Water-based recreation is centered around the 12-acre man-made lake created when the CCC constructed two dams in 1938. Facilities around this lake include the large stone and timber bathhouse enclosing a snackbar, toilet facilities, an interpretive display area, and changing areas for men and women; a sand beach, diving platform, and protected swimming area; and a boathouse for storage of twelve rental rowboats. This complex attracts more than 20,000 swimmers, boaters, and fishermen throughout the use season, and shows the same impacts found at the other heavily used areas: erosion, soil compaction, and some vegetative deterioration. For example, the swimming beach is constructed on the only useable portion of the lakeshore, but slopes so steeply that the combination of use and rainfall continuously forms erosion gullies which carry the sand out into the lake. Periodically, this sand must be transported from the lake bottom back up onto the beach area, creating a continuing maintenance responsibility.

The Upper and Lower parking areas and also serve as trailheads for those park users desiring to take the hiking trails to some of the natural features in the park. As mentioned earlier, the Lower Parking Area serves the trail leading to Hidden Falls and Window Falls, but it is also the beginning point for the hiking trail to the Hanging Rock and the Upper Cascades. The Upper Parking Area at the bathhouse is the beginning for the interpretive trail and the long distance trails to Wolf Rock, House Rock, Cook's

Wall, Devil's Chimney, Moore's Wall and Moore's Knob.

The hiking trails collectively cover over 8 miles, and much of this mileage is in need of maintenance to reduce the problems of erosion and compaction. New trails are also being designed and opened. For example, the Sauratown Trail, dedicated in October, 1979, connects to the existing trail system within the park by a new trail around Ruben Mountain and across Huckleberry Ridge. These new trails have been constructed using techniques designed to prevent the erosion which has damaged existing trails within the park.

The trails to Hanging Rock and Moore's Knob are in the worst condition of any in the park. The Hanging Rock trail is compacted so badly that vegetation is dying; roots are crushed from being walked on for years, soil is washed away on the worn pathways, and the exposed roots cannot support the rest of the plants.

The worst problems along the Hanging Rock trail are compaction, excessive width, and excessive grade while the Moore's Knob trail primarily suffers from erosion. The trail runs almost straight downhill along an old roadbed which once lead to the observation tower on Moore's Knob. This alignment causes water to flow along the wheel tracks, and over the years nearly all the soil has washed away, exposing bedrock in many places. The park staff is currently working on a trail rehabilitation program which will eventually include all of the trail system.

Peripheral Use Areas

Through the years, expansion of the park to include and protect peripheral natural features has brought several secondary roads within the park boundaries. This has resulted in areas separated from the original contiguous park ownership, separated from the day-to-day control which is possible within the main park, and has therefore created different problems and needs.

There are currently five peripheral use areas within the park: the Indian Creek area, the Lower Cascades area, the Tory's Den area, and two spurs to the east which were originally purchased to provide transplantable native vegetation to be used within the park. No active recreation takes place on these spurs, but the situation is different on the other three sites.

The Tory's Den area contains approximately 86 acres north of S.R. 2028, or Charlie Young Road. Hikers, picnickers and sightseers park along this road for the short walk to the cave known as the Tory's Den and the series of small waterfalls on nearby Tory Creek. Since this area is so far from the main park activity area, control of parking, vandalism and nighttime use, and keeping the area clean are very difficult.

The same problems are present at the Lower Cascades area, which

contains approximately 91 acres north of S.R. 2012 or Hall Road. This land was purchased to provide protection of the beautiful Lower Cascades Falls, and the surrounding vegetation and rock outcrops. This area's separation from the main park poses problems because it is removed from the other use areas and is less accessible by the park staff.

The Indian Creek area is closest to the main park but is outside the park gate and on the north side of S.R. 1001, Moore's Springs Road, from the park. Since the majority of this 468-acre area has only recently been purchased, it is not yet actively used for any organized recreation; however, similar control problems exist. It will be difficult to correct these situations until additional staff is available to actively manage the peripheral use areas.

MASTER PLAN CONCEPT

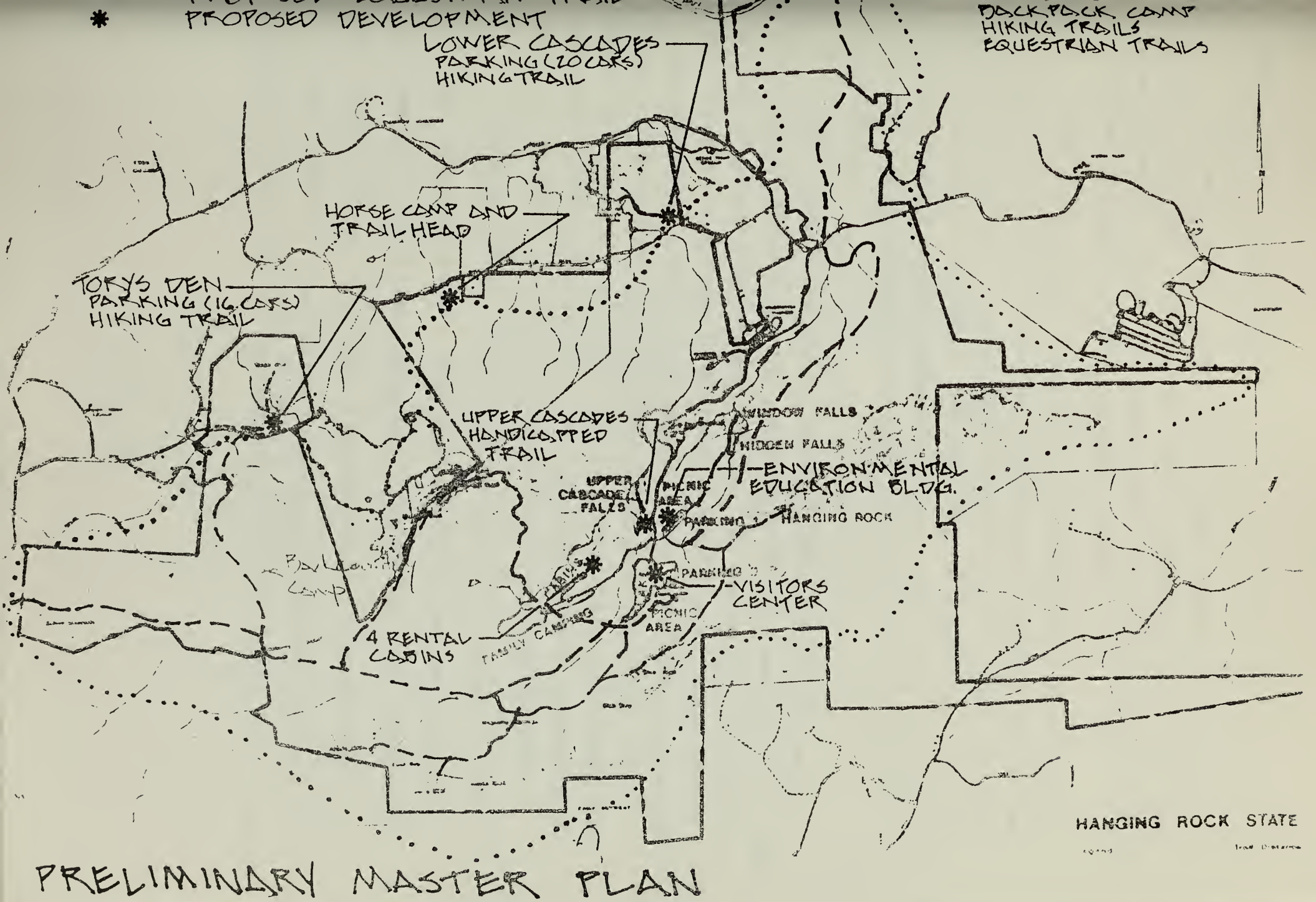
The Hanging Rock State Park Master Plan is based on the same principles and purposes that have guided the management and development of the park since its establishment. Protection of the natural resource while providing compatible outdoor recreation uses within those natural surroundings will continue to be overall goal during future development of the park.

Major recreation activities will remain within the central park activity zone, and the facilities there will be renovated, rehabilitated, or expanded as outlined in this plan. New recreation opportunities will be provided in the peripheral use areas which have been left largely undeveloped since being purchased. Additional staff will be necessary before many of the new activities can be provided. Further development will depend on having sufficient staff and equipment, as well as an adequate operating budget, available to effectively manage the new areas.

The master plan takes into consideration many public concerns expressed about the park, its activities, and surroundings. Two public meetings, and numerous other meetings with interested citizens and organized groups, have provided input useful in developing the plan. The major concerns expressed at these meetings were as follows: the need for study and interpretive centers, the construction of new trails, the rehabilitation of existing trails, the development of equestrian trails, the need for accessibility by the handicapped, the development of backcountry camps, the need for canoe access to the Dan River, the desire for the park to remain in a natural state, the desire for more rental cabins and the possibility of winterizing them for expanded use, and the need to acquire more land to protect

the park's natural features. The park staff was interviewed to discuss the existing problems and proposals for corrections in addition to possible facility expansions or redesigns. In-house meetings within the Division of Parks and Recreation were hald to discuss proposed facilities and staffing, as well as policy matters and long-range needs.

As a result of Division of Parks and Recreation efforts to solicit public input, interested citizens representing regional planning, environmental, and recreational interests have formed the Hanging Rock State Park advisory committee. The committee's role is to advise the Division staff on matters which may have an impact on the park and also to support, as a public group, the recommendations contained within the master plan. As examples of coordination and cooperation, the master plan recognizes the value of adjacent recreation uses such as the Sauratown Mountain Trail and the Dan River Canoe Trail, and is based on continuing public support.



PRELIMINARY MASTER PLAN

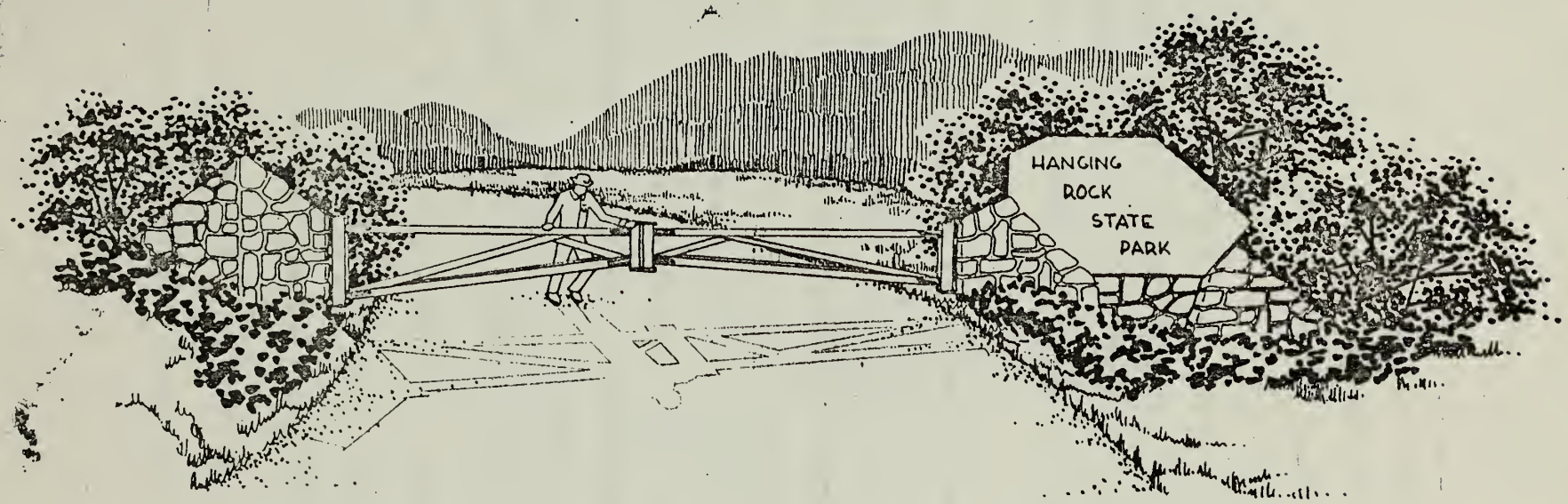
CENTRAL PARK ACTIVITY ZONE

The main entrance into the park will remain at the intersection of Moore's Springs Road and the main park road. The overgrown vegetation around the intersection will be selectively thinned as needed to provide a pleasant park entrance.

The existing park sign has been redesigned to more closely conform to the visual character of the park's natural features and existing structures. The existing gate and the new sign are to be incorporated into one unit. The sign will be constructed of large timbers, and the support members on either side of the swinging gate and the mounting framework for the sign are to be constructed of native stone.

The stonework within the park was completed by CCC workers and strongly reflects the art and craftsmanship of working with stone. All mortar joints are "struck" meaning that the mortar is raked out of the joints to a depth of at least one-half inch. This type of joint emphasizes the size and quality of the stone rather than the joint itself by creating a shadow line around each stone. The exacting care with which this type of construction was accomplished enhances the character of the park facilities, and this concern for quality and detail will be maintained in the new construction.

Although the main park entrance road fits nicely into the existing topography, the casual viewer may not realize how much rock and soil removal was necessary to build the road. Vegetation has covered some of the marks of construction, but bare eroded soil is still visible in some places. The steep banks with little or no vegetative cover will be regraded to a 1:1 or 2:1 slope where possible,



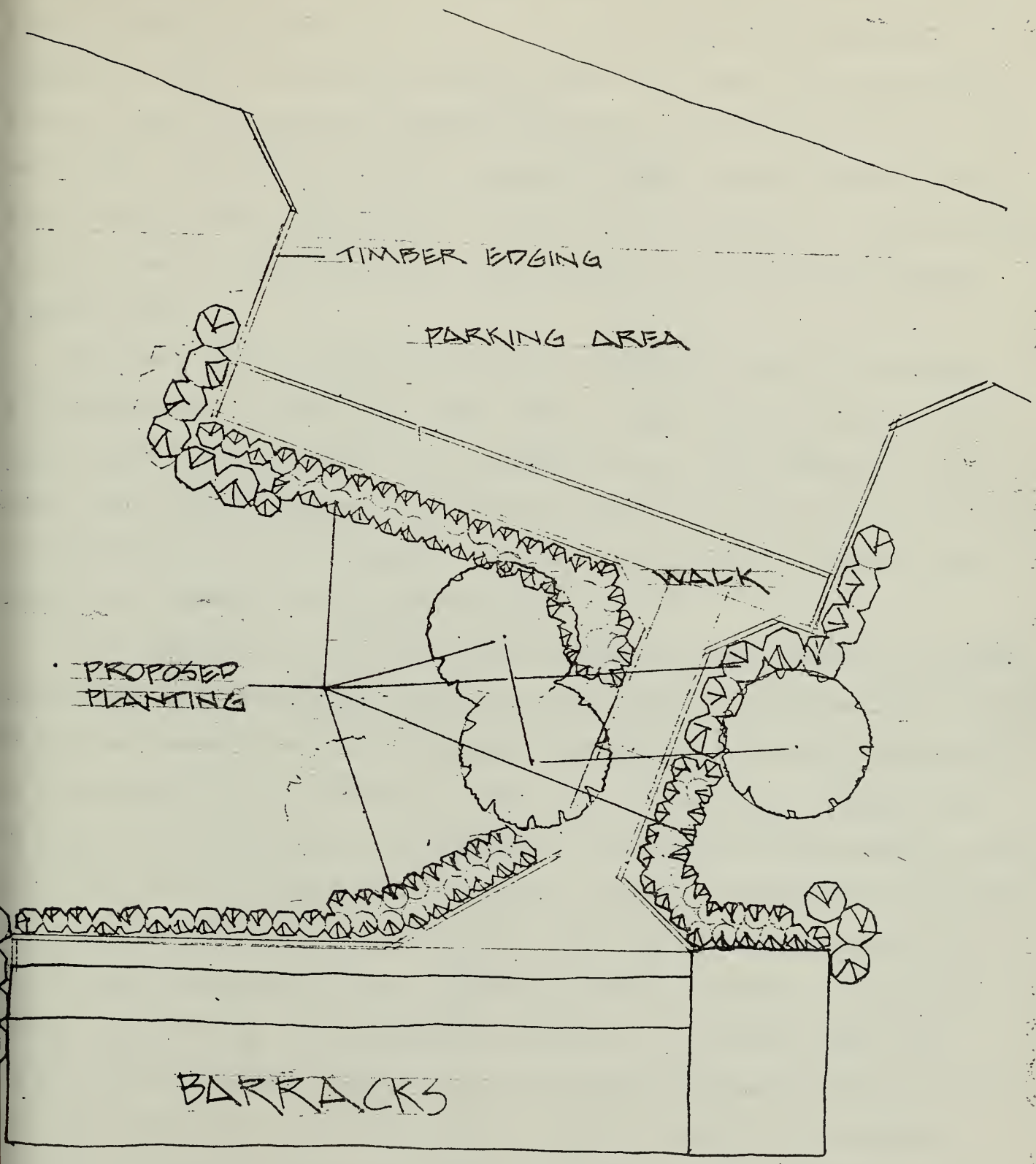
PROPOSED PARK ENTRANCE SIGN

and the top ten feet of the banks will be rounded off to blend smoothly with the existing undisturbed ground. Careful placement and planting of native trees and shrubs, and grassing of the gentle slopes, will quickly blend the newly reshaped road banks into the surrounding landscape, creating a roadway similar to the Blue Ridge Parkway.

The organized group tent camp is the first park activity area along the main entrance road. The gravel entrance road turns west from the main entrance road and then north again until it runs almost parallel to the paved road. This gravel road, controlled by a chain-and-lock gate, allows vehicular access to a gravel parking lot close to the nine campsits which can easily accommodate 60 people. Rehabilitation measures must be taken in this area, and terracing and the construction of tent pads may become necessary to provide level useable areas.

Since the park boundary is so close to the activity area, and since residences and outbuildings are within 100 feet, acquisition of additional property will be necessary to provide adequate buffer and protection for the campers. Another gravel road, turning off S.R. 2012, or Hall Road, allows vehicular access directly to another chain-and-lock gate at the park property line. This road must be closed to traffic further from the park boundary. Acquisition of this adjacent land will solve most of these problems, as well as provide a needed park ranger residence nearby.

About 200 feet farther along the main entrance road, another gravel road turns to the west, leading past the dumpster location to three ranger residences and the seasonal personnel barracks. This entire area is in fairly good condition, but the access road need regrading to fill some of the low spots and level the roadbed before more grave

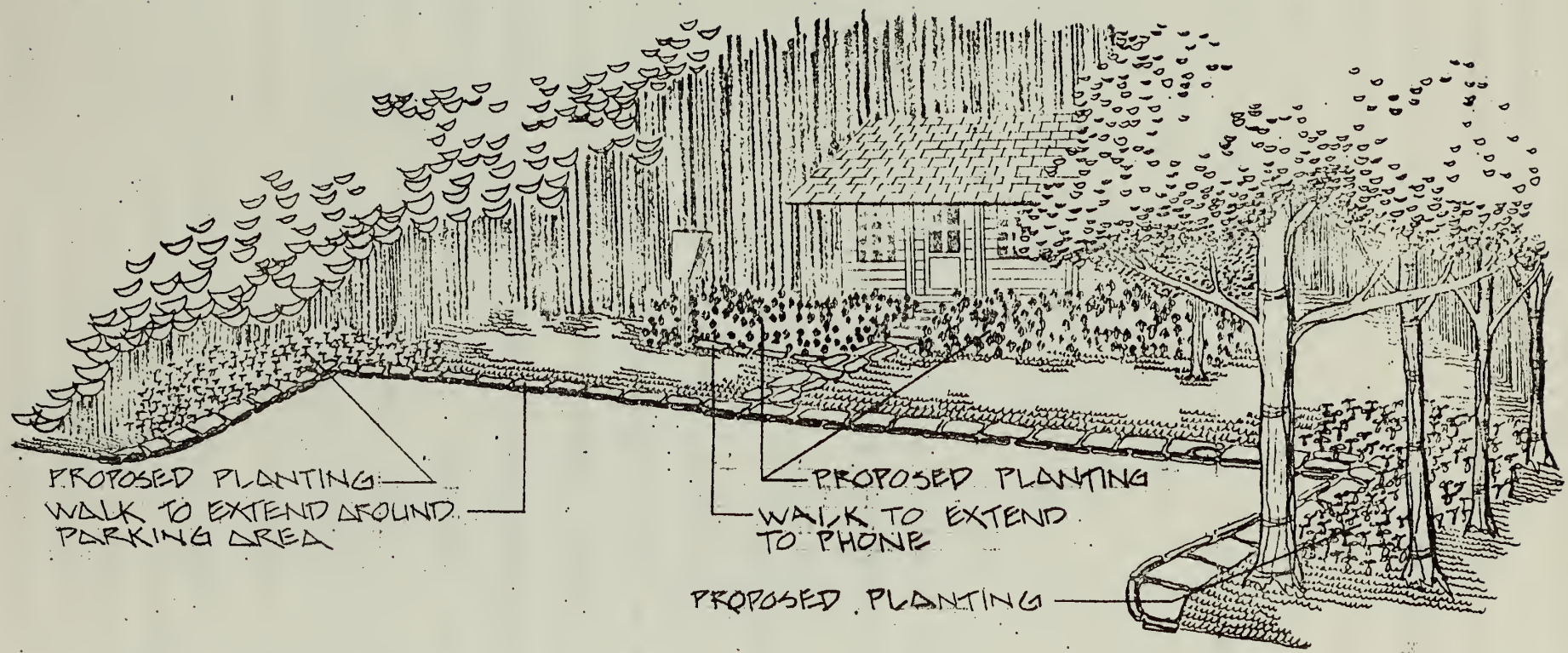

TIMBER EDGING
PARKING AREA
WALK
PROPOSED PLANTING
BARRACKS

is brought in and compacted. Gravel paths will also be constructed from the parking areas to the houses and barracks, and indigenous vegetation, such as dogwood, sourwood, mountain laurel and gooseberry, will be used to recreate a wooded appearance around the buildings. In deep shade, leaf litter will be spread to create a more natural setting, while reducing the amount of maintenance mowing necessary. The personnel barracks needs remodeling to provide laundry facilities and a central commons area.

The park office, maintenance area and superintendent's residence are located along a spur road which turns to the east of the main park road, about 4,000 feet past the residence road. This complex is located on a small ridge which offers an excellent view of Hanging Rock. In the future, the pine trees and smaller vegetation will need to be selectively removed to preserve the view.

The parking area in front of the office is large enough to accommodate eight cars within its stone curbing. Parking spaces will be painted on the pavement and one handicapped space(12'6" wide) will be marked on the pavement and by a sign. A curb cut for wheelchair access will be constructed, and the stone walkway to the office's front steps as well as to the public telephone will be relaid, thereby enhancing accessibility for those with ambulatory limitations. The public telephone will be modified as necessary for use by the physically disabled. A doorbell button installed on the handrail leading up to the office door will notify office staff of visitors requiring assistance to climb the steps. The long-term goal is to make the park office completely accessible, but this will not be feasible until the office building needs rebuilding. Until that time, the modifications already mentioned will be made.

To alleviate erosion around the office, topsoil will be brought in and immediately grassed to stop further erosion, while indigenous species like dogwood, mountain laurel and gooseberry are used to re-establish


PROPOSED PLANTING
WALK TO EXTEND AROUND PARKING AREA
PROPOSED PLANTING
WALK TO EXTEND TO PHONE
PROPOSED PLANTING

PARK OFFICE

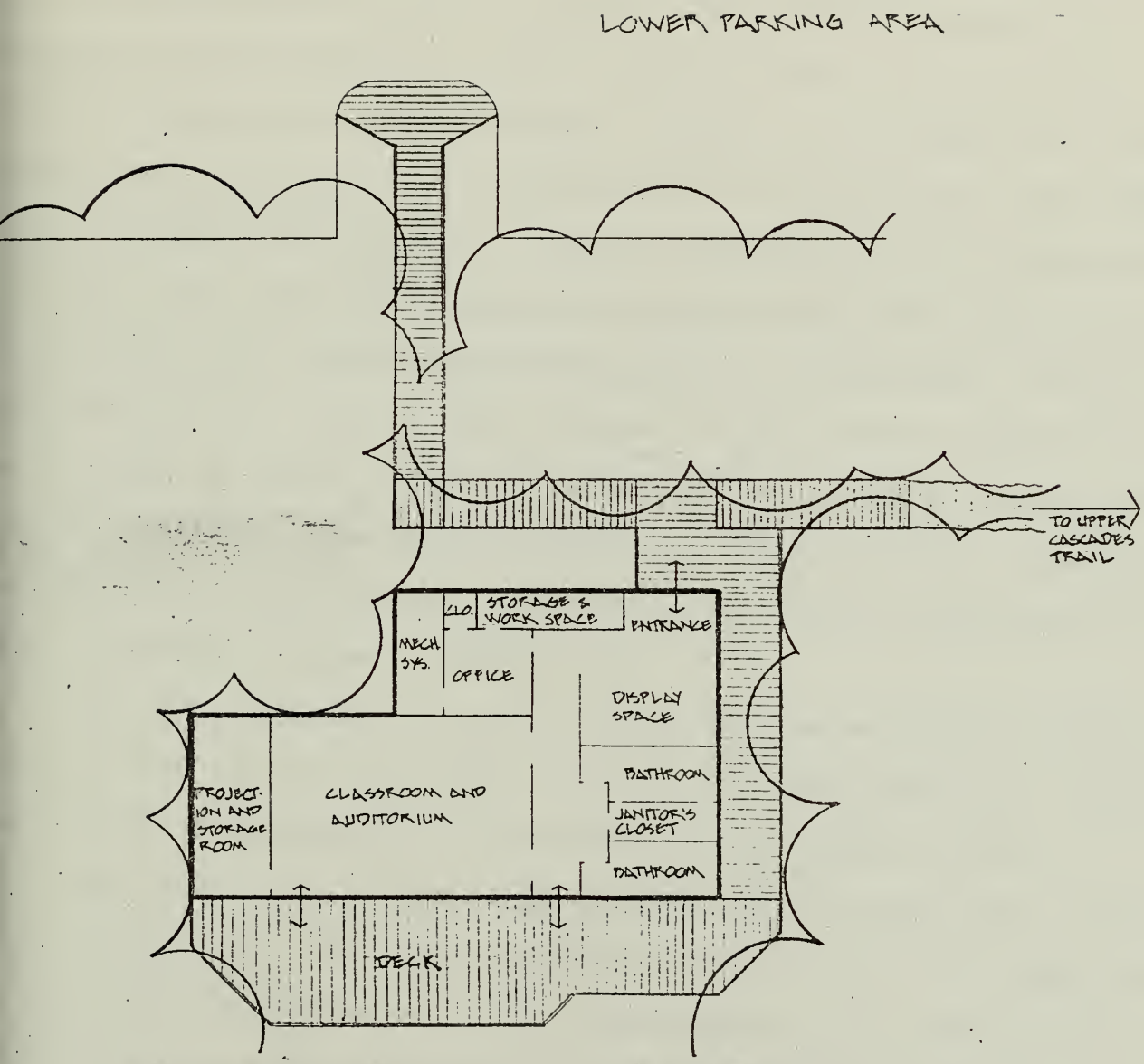
some of the natural vegetation around the building. The plants will be transplanted from designated sites within the park, and planted under the supervision of the park Landscape Architect.

In the maintenance area, the deteriorating roofs of the warehouse and garage will be repaired.

Turning east (left) at the next intersection about 2100 feet further along the main park road places the park visitor in the 450-space Lower Parking Area which currently provides parking for the Lower Picnic Area, the Hanging Rock trail, the Hidden Falls and Window Falls trail, and the Upper Cascades trail. At the eastern end of the parking area, an access road for park vehicles also provides pedestrian access into the picnicking area, past the two stone picnic shelters, and finally to the Hidden Falls and Window Falls trails. At the eastern end of the parking bays, nine spaces conforming to the handicapped section of the North Carolina Building Code will be designated. The spaces will be 12'6" wide and marked by the international accessibility symbol.

The pedestrian path leading into the picnic area will be graded smooth and a new surface of finely packed gravel will be provided. Several picnic sites near the entrance will be made accessible to special populations by providing a firm, smooth pathway, extended picnic table tops, elevated picnic grills as the old surface-mounted grills are replaced, and water fountains. The accessible sites will remain unmarked or unreserved so that the special users will not be "labelled." In fairness to other park users, the picnic tables will be available on a first-come, first-served basis. Toilets accessible to the handicapped will be provided at the Environmental Education Center.

One of the highest priorities in the master plan is the constructio of an Environmental Education Center. A prime location for this Center is adjacent to the parking area for the Lower Picnic Area. The views from this location of both Hanging Rock and Moore's Knob are as open



ENVIRONMENTAL EDUCATION BUILDING

as any within the park and the Hanging Rock trail and the Upper Cascades trail both originate closeby. There is sufficient parking space to easily handle the increased traffic generated by placing the Center here.

The site chosen for the Center is adjacent to the lowest parking bay, roughly halfway along its length. Two parking spaces will be eliminated and a pedestrian island built in their place as part of the building entrance. Five handicapped spaces will be designated near the island, and access into the building will be by two 6'0" wide ramps at a maximum slope of 8 percent. The main finished floor in the Center will be 4 feet below the elevation of the parking area, and a level deck or platform will extend around two sides of the building. On the side farthest from the parking area, closest to the forest, the decking will be expanded to create an outdoor classroom space about 16 feet wide and 40 feet long. On the front side of the building, the ramp will extend down to ground level and a new trail will be constructed to connect with the existing Upper Cascades trail.

The Environmental Education Center will be designed in the future, and the final design may differ from the one described here. However, the general guidelines and relationships will remain the same.

The Center will contain approximately 2,200 square feet of interior floor space and 1,500 square feet of exterior deck space, all of which will be accessible to the handicapped. The main building entrance, on the side closest to the parking area, will admit the visitor to a small display space and reception area. The office, storage area, and small work space/laboratory will be to the right. Down a hall diagonally across the display space are the men's and women's bathrooms to the left and the large classroom/auditorium on the right.

The ceiling of the Center will have clerestory windows along its southeast and southwest-facing walls. A projection room enclosure will be full width along the northeastern wall, and the northwestern wall will contain more windows, as well as the exits to exterior deck from the auditorium and the hall.

The Environmental Education Center will be exactly that: an educational facility. The natural resources in Hanging Rock State Park are significant enough to warrant a series of programs explaining, for example, the natural forces responsible for producing the major geologic features in the park: Hanging Rock Moore's Knob, and Cook's Wall. Interpretation of all the natural and historic resources in the park will be an ongoing, long-term goal of the education program within the Center.

A naturalist will be required to develop and implement a full interpretive program. These programs will include guided and self-guided interpretive trails, slide and movie presentations, live and static displays, individual study and cataloging of the flora and fauna in the park, interpretation of the historic aspects in the park, such as the Civilian Conservation Corps, and development of comprehensive educational programs for school classes and other interested groups. Although most of the Center's use will be by groups, substantial family use is expected and will be encouraged.

From the platform at the entrance to the Center, a ramp will lead to a trail connecting to the Upper Cascades Trail, which will be rehabilitated to become an interpretive trail with a special emphasis on the handicapped visitor. The design will adhere to all standards for accessibility such as keeping maximum grades to 8%, providing a hard

trail tread, and providing handrails where necessary.

Care will be taken to locate the crossing connecting with the Upper Cascades Trail at a point where the drivers of vehicles have more than adequate sight distance in either direction. In addition, the road surface will receive a surface treatment, such as the placement of cobblestones in a narrow strip across the road on either side of the crossing to create a different road texture, alerting drivers of the approaching crossing. Lastly, signage alerting drivers to the crossing will be placed along the road at an appropriate distance from either side of the crossing.

The grades along the Upper Cascades Trail are relatively gentle except for the last 200 feet down to the stream bed below the falls. Rather than attempt to take the handicapped down to the stream bed, a viewing area of the Upper Cascades will be provided west of the trail. A short series of boardwalks and ramps will lead to a platform from which the sound of the falls can be heard and, with selective pruning, a view to the stream opened.

Interpretive stations will be located along the trail and at the platform, and the trail down to the stream bed will be rehabilitated to alleviate the serious erosion and compaction problems presently existing.

The road turning west at the main intersection leads to the existing family cabin area and the two family tent and trailer camping loops. The drive leading past the family cabins turns north about 2,600 feet from the intersection, and currently extends another 600 feet along a relatively narrow ridge.

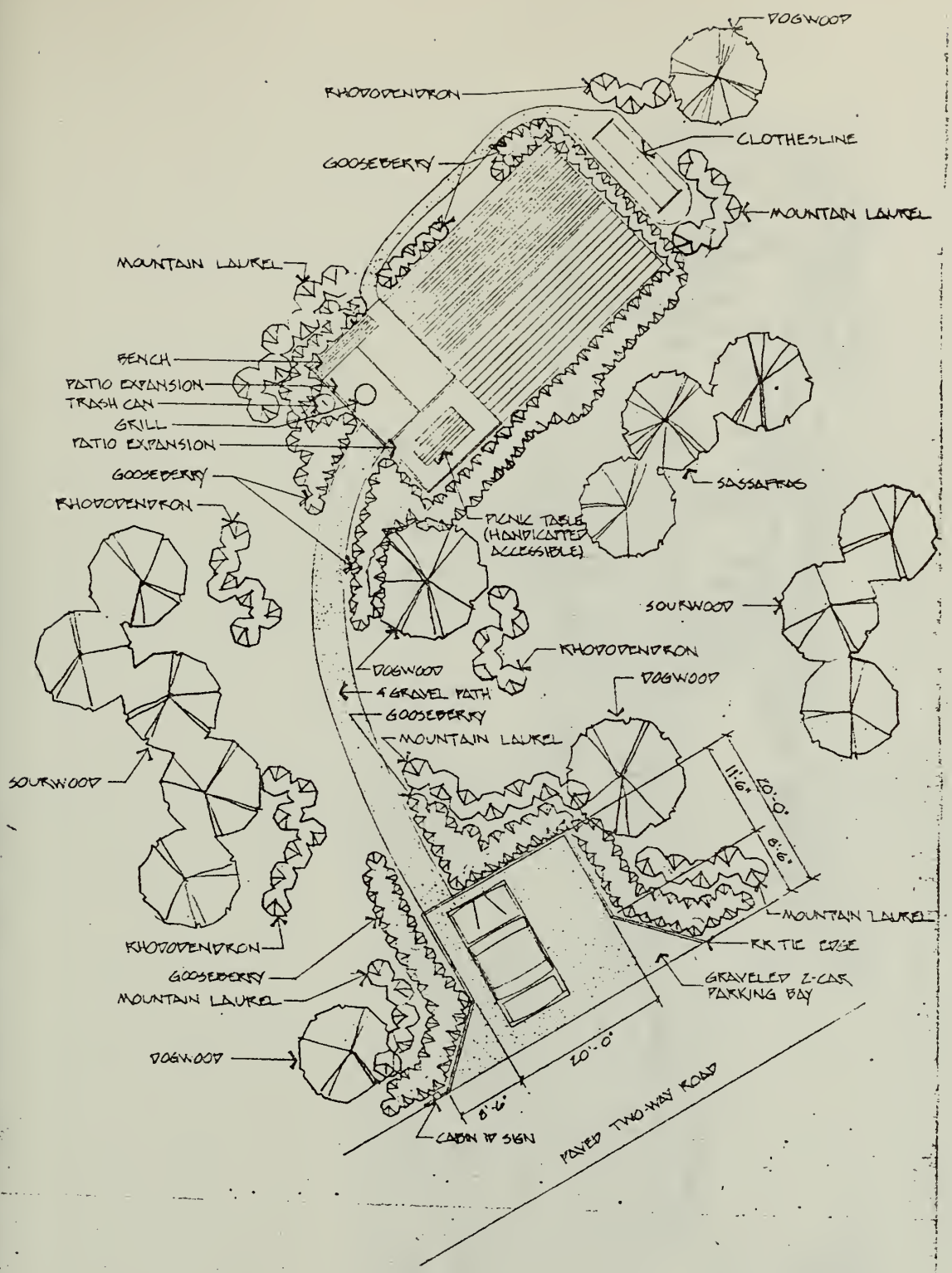
All existing rental cabins are sited along the northern side of

he road and set back approximately 100 feet from the pavement. In the ast, no defined parking spaces were provided which allowed the cabin sers to park as close to the cabin door as they wished. This un-ontrolled parking and access has resulted in severe compaction and erosion round the cabins.

To correct this problem, large timbers have been laid to mark arking spaces, which have been gravelled. The compacted and eroded area ill be closed by installing timber bollards, or upright posts, and by ew plantings of ground cover, shrubs, and understory vegetation. New abin identification signs will be placed at a roadside location in ach parking area so that users will know exactly where to park.

New gravel paths four feet wide will be built from the parking areas o the patios, and two feet wide paths will be placed from the patios to he clotheslines. The existing concrete patios will be expanded to 12 eet across and to the full width of the cabin wall. This expansion will llow ample room for a bench, grill, and picnic table on the atio. The existing cabins will be made as handicapped-accessible as ossible. The gravel pathway, new patio, cabin entrance and picnic table ill be wheelchair-accessible.

As part of the cabin area rehabilitation, the badly compacted soil ill be aerated, and new topsoil brought in. The original ground con-ours will be re-established as naturally as possible and reshaped as eeded to control rainwater runoff. Sourwood and dogwood trees trans-lanted from other locations in the park will be randomly clustered hroughout the cabin area to recreate a natural appearance. Rhododendron, ountain laurel, and gooseberry will also be transplanted and clustered o define the pathways and patios, returning the entire cabin area to a ore natural appearance. Newly graded areas will be seeded with annual yegrass for the first year to help control erosion, and later leaf litter



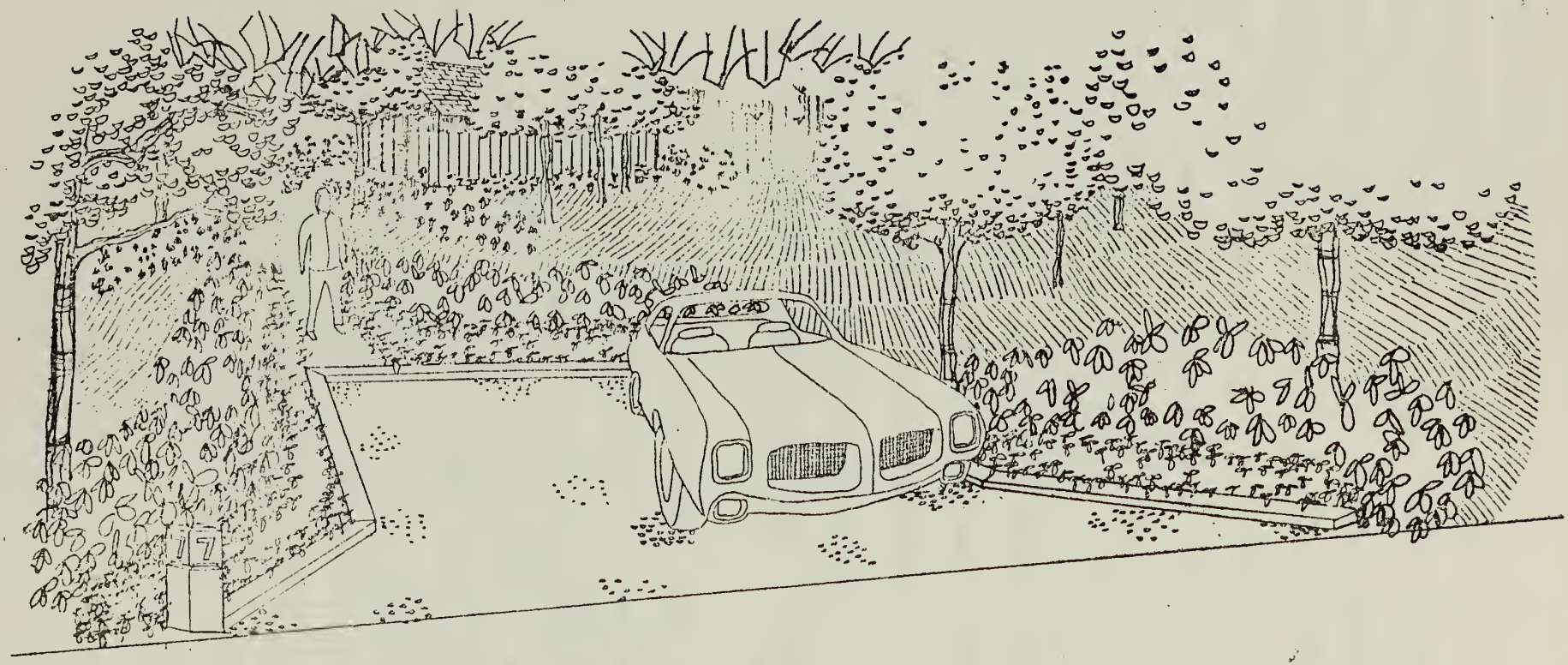
HANGING ROCK STATE PARK GUIDELINES

TYPICAL CABIN PLAN

SCALE: 1" = 10'-0"

NOTES:

1. COMPACTED SOIL THROUGHOUT THE CABIN AREA SHALL BE AERATED.
2. ADDITIONAL TOPSOIL SHALL BE SPREAD OVER THE IMPACTED AREA AS NECESSARY TO RESTORE TO ORIGINAL GRADE.
3. NATIVE PLANT MATERIALS SHALL BE PLANTED RANDOMLY THROUGHOUT THE AREA TO CLOSE EXISTING PATHS.
4. LEAF LITTER SHALL BE SPREAD THROUGHOUT THE AREA IN ORDER TO RESTORE NATURAL APPERANCE.
5. THIS PLAN IS INTENDED TO SERVE AS A GUIDELINE AND MAY BE MODIFIED IN ORDER TO BE ADAPTABLE TO EACH INDIVIDUAL SITE.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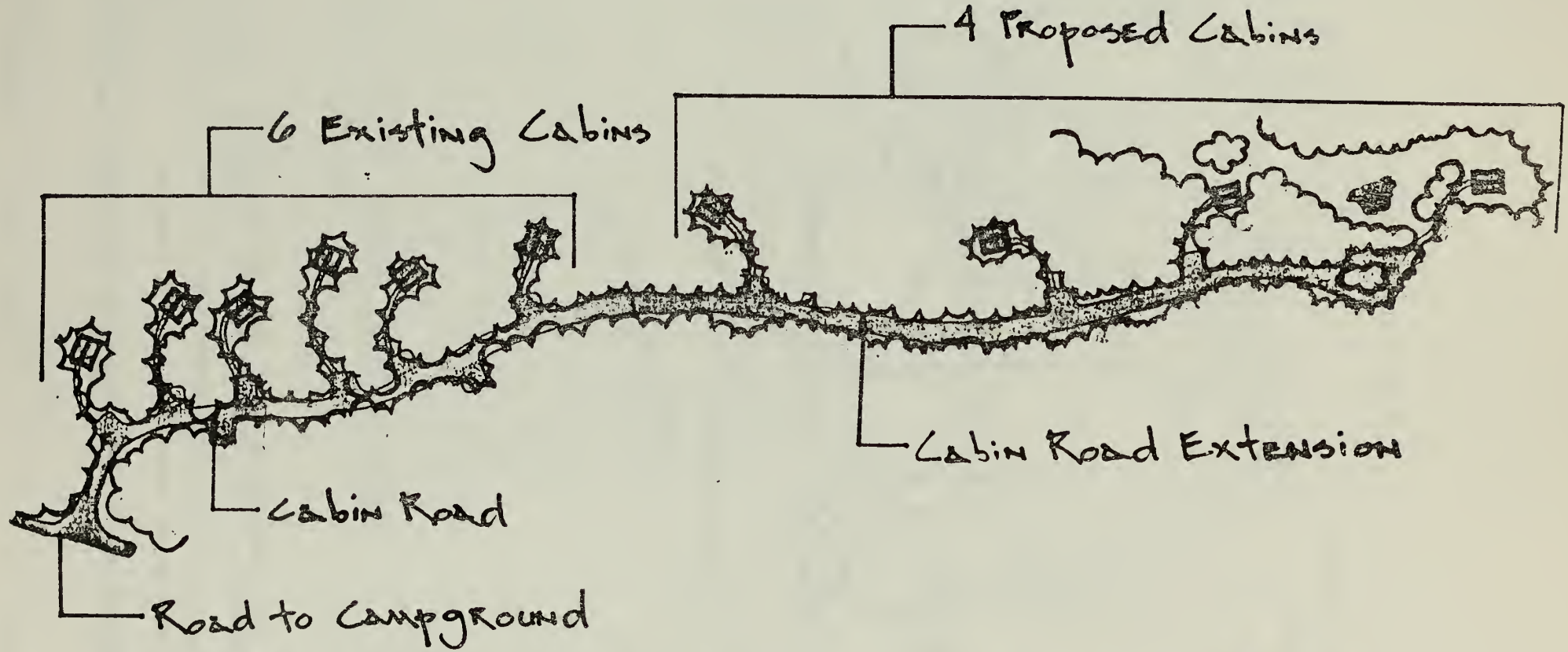
will be spread throughout the area to restore the humus layer.

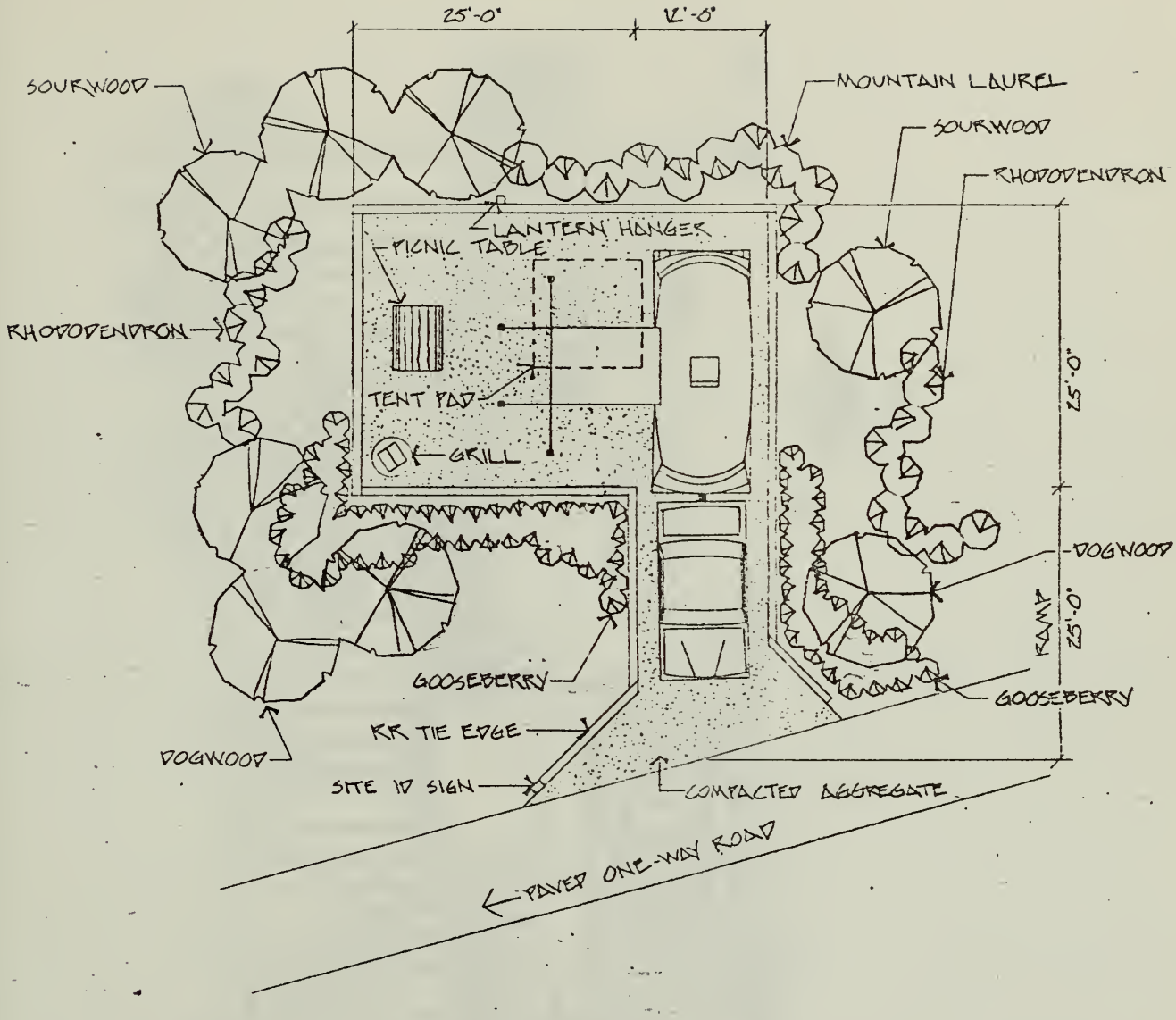
For the visually handicapped, cabin identification numbers will be made readable by touch and placed no more than five feet above ground level. Smoke alarms will be installed in each cabin and fire extinguishers placed so they are reachable from wheelchair height. Knurled handrails will be installed where needed in the bathrooms to aid the handicapped.

The long-term plans for the family cabin area include building four winterized cabins along an extension of the access road. Winterizing the cabins will allow the extension of the use season into the spring and fall, but will involve some substantial construction, particularly involving underground utilities. The waterline serving the six existing cabins is too shallow and is subject to freezing during the winter. This line will have to be replaced and protected from freezing before winter use of the cabins could be allowed. In addition, the new cabins will be equipped with solar hot water heaters and wood stoves.

The four new cabins will be designed to reflect the appearance of the existing cabins in order to retain the character of the area. Similar floor plans, construction materials, and building locations will blend the expansion into the existing area. The asphalt roadway will follow an old roadbed along the ridge for an additional 750 feet, staying below the actual crest of the ridge, and leaving roughly 100 feet of undisturbed land between the road and the new cabins. Parking spaces, walkways, and patios will be designed and constructed similar to those proposed for the existing cabins, further tying the two phases together.



FAMILY CABINS SITE PLAN



HANGING ROCK STATE PARK GUIDELINES

TYPICAL CAMPSITE PLAN

SCALE: 1" = 10'-0"

NOTES:

1. COMPACTED SOIL THROUGHOUT THE CAMPING AREA SHALL BE AERATED.
2. ADDITIONAL TOPSOIL SHALL BE SPREAD OVER THE IMPACTED AREA AS NECESSARY TO RESTORE TO ORIGINAL GRADE.
3. NATIVE PLANT MATERIALS SHALL BE PLANTED RANDOMLY THROUGHOUT THE AREA TO CLOSE EXISTING PATHS.
4. LEAF LITTER SHALL BE SPREAD THROUGHOUT THE AREA IN ORDER TO RESTORE NATURAL APPERANCE.
5. THIS PLAN IS INTENDED TO SERVE AS A GUIDELINE AND MAY BE MODIFIED IN ORDER TO BE ADAPTED TO EACH INDIVIDUAL SITE.

Since the new cabin location was used as a group camping area in the past, some site rehabilitation and vegetation transplanting will be necessary. This rehabilitation will follow the same guidelines used in the existing cabin area: aeration, new topsoil, grassing and revegetation. All utilities for the new cabins will be underground, and the water-lines will be protected from freezing. Since similar design details and construction techniques will be used for rehabilitation and new onstruction, the pleasing, relatively isolated character of the cabin area will be maintained and in the case of the new cabins, enhanced.

About 400 feet past the family cabin road, an intersection directs tent-and-trailer campers into the two, one-way camping loops. The first loop is 2,600 feet long and curves back to the same intersection. The second loop is 2,200 feet long and intersects with the park road about 1,400 feet east of the cabin road intersection. Both loops have a washhouse and campsites on each side of the road.

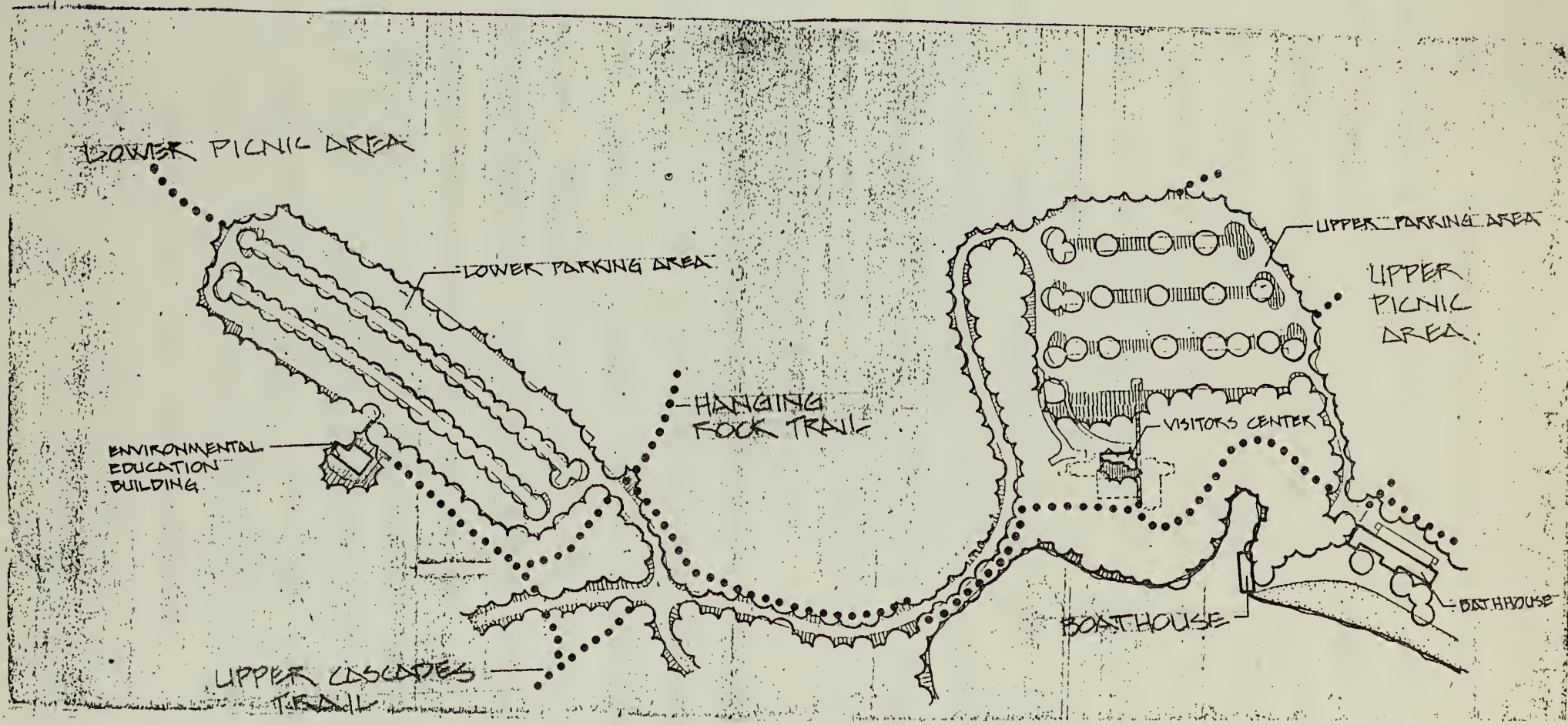
The 74 campsites are in need of rehabilitation, and many of the same techniques proposed to rehabilitate the cabin area will be used here. At each site, large timbers will be placed to delineate a level parking area large enough for a motor home or travel trailer, and an activity pad 25 feet square on the door-side of the trailer will be surfaced with fine gravel and will include a picnic table, grill, and tent pad. New campsite identification signs will be placed road side at the parking areas and will be approximately three feet above ground level for the convenience of the visually handicapped. The trash can will continue to be located in groups throughout the camping loops as presently in practice.

Over the years, the buffer areas between many campsites have become impacted to the extent that adjacent sites run together. To

solve this problem, the boundary of each campsite must be clearly defined. Timber edging around the campsite will provide some definition of the boundary, but the reestablishment and maintenance of vegetation will also be necessary to afford greater protection and privacy. Dead and dying trees will be removed, badly compacted soil will be thoroughly aerated and topsoil will be spread over the impacted areas. Native trees such as dogwood and sourwood will be transplanted from designated locations witin the park and relocated between the campsites to recreate a natural appearance. Likewise, rhododendron, mountain laurel, gooseberry, and other native shrubs will be transplanted to reestablish the understory and to define the use areas. This work should be carefully phased to minimize conflicts with campers, but it may be necessary to close the newly rehabilated campsites for a period of time to allow the plant materials to become established.

In addition, several campsites near one washhouse will be made handicapped-accessible. Through the application of the previously described rehabilitation techniques, the campsites will be made relatively level and barrier-free. Picnic tables with extended tops and elevated grills will be use in these sites. For ease of use, these designated campsites will be located on the same side of the road as the washhouse and will be accessible by a path meeting all standards for the handicapped.

Renovations of the washhouse located between campsites 55 and 58 will be necessary to accommodate the handicapped user. Access into the building and facilities within the structure will be improved as required by law. The signs on the building designating the "Men" and "Women" areas will be displayed at an appropriate level, clearly written, and tactile for the visually impaired.

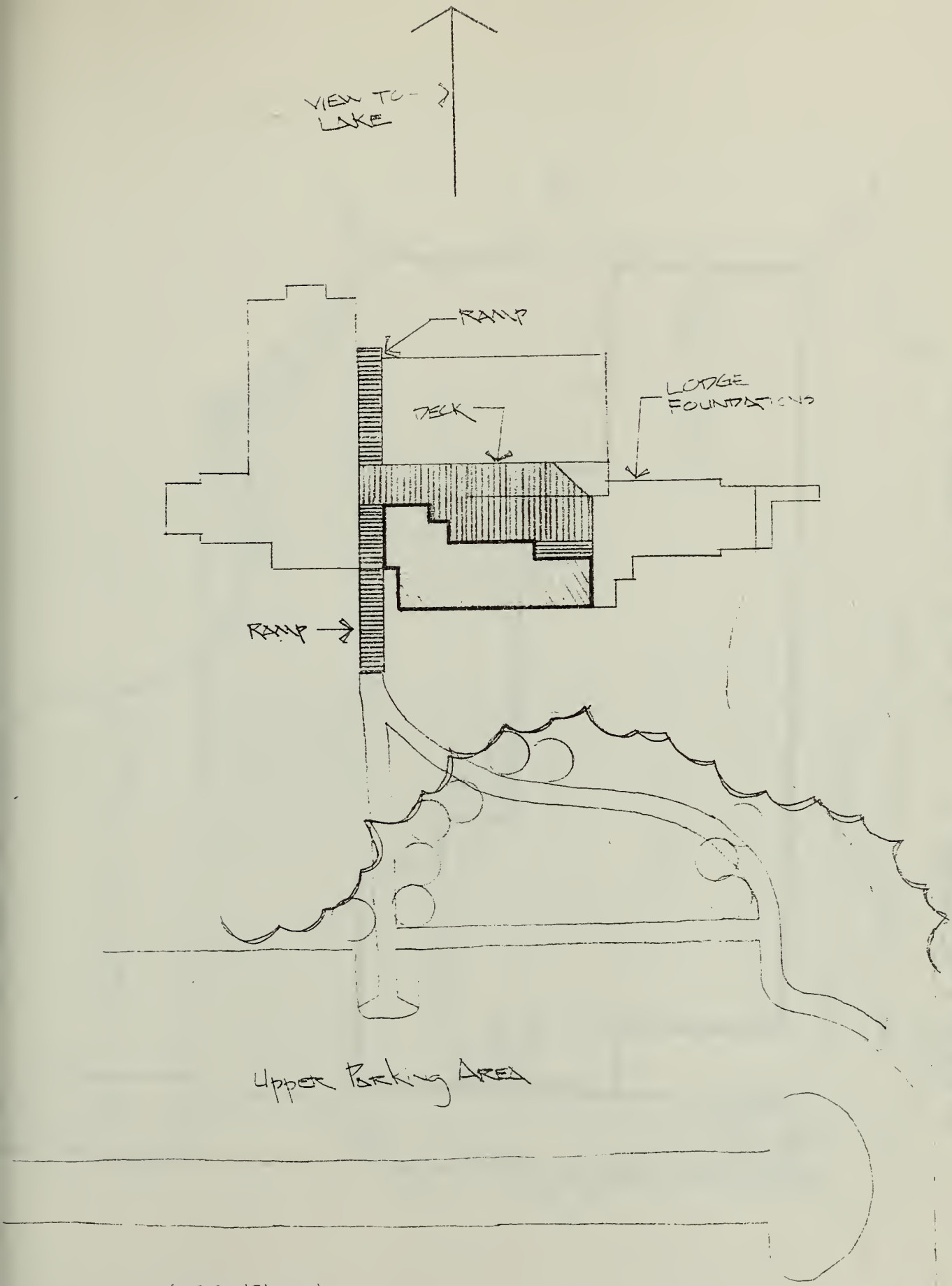

LOWER PICNIC AREA
LOWER PARKING AREA
ENVIRONMENTAL EDUCATION BUILDING
HANGING ROCK TRAIL
UPPER CASCADES TRAIL
UPPER PARKING AREA
UPPER PICNIC AREA
VISITORS CENTER
BOATHOUSE
BATHHOUSE

The access road to the Upper Parking Area passes across an earthen dam at the northern end of the lake, and over the years, vegetation has grown to obscure the view of the lake and beach from the road. To reopen this vista, it will be necessary to selectively remove portions of the vegetation and frame the view from the road.

A lodge building, begun by the CCC but only completed as far as the foundation, is located off the westernmost bay of the Upper Parking Area. This site was selected for the Visitor Center because of its central location in the intensive use area created by the bathhouse/beach complex and the Upper Picnic Area. A portion of the existing lodge foundations will be used for the building if, after an engineering study, the foundations prove structurally sound. If not, the building and new foundation will be located inside of the existing lodge foundations.

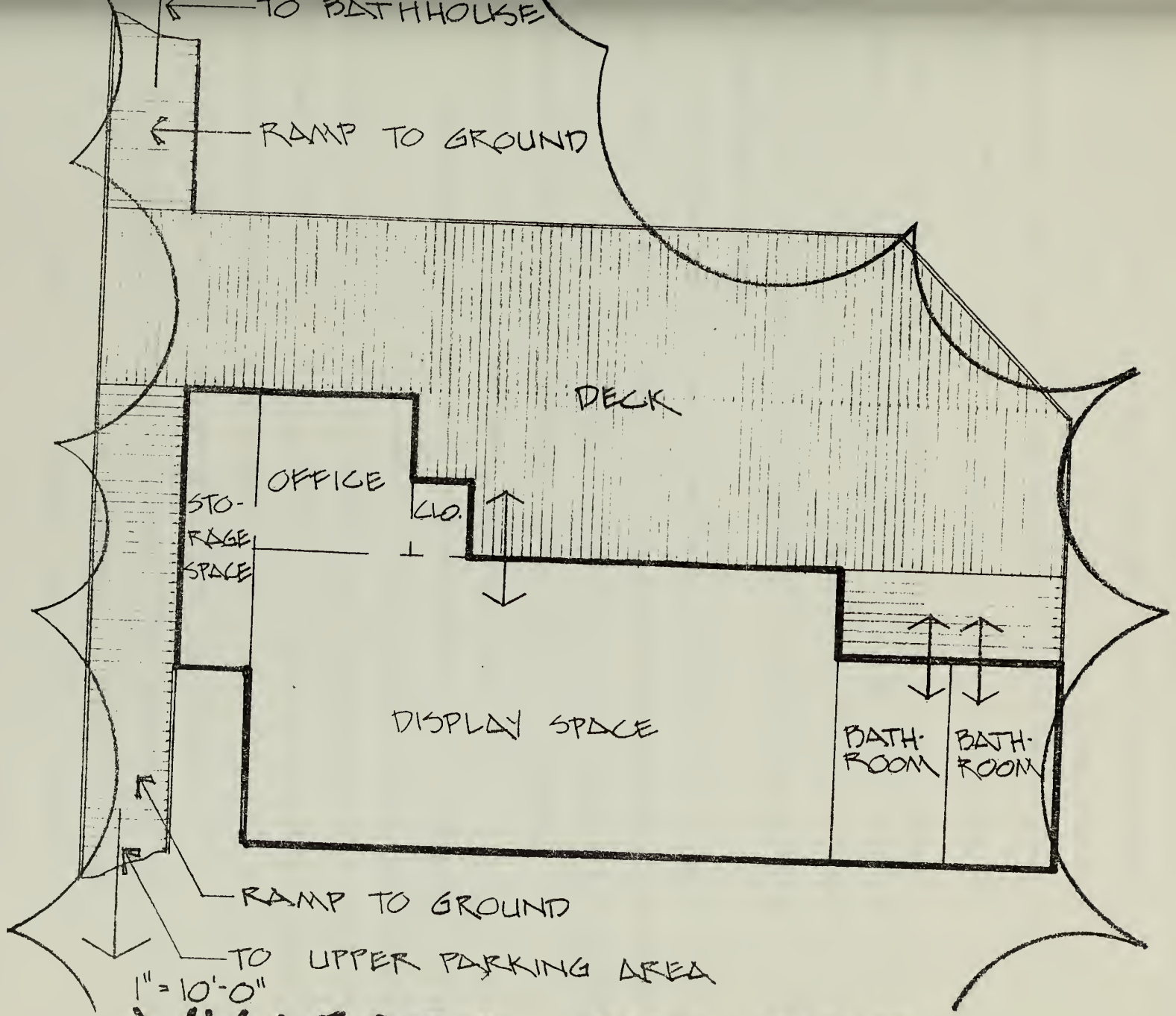
Two walkways will connect the building to the parking area. One walkway will be handicapped-accessible and will lead to a pedestrian island created in the parking bay by the elimination of two parking spaces. Adjacent to this island, three handicapped parking spaces will be designated. The second walkway will lead from the building to the eastern end of the parking bay.

The facility will consist of approximately 1,250 square feet of interior floor space, including a display area, an office, storage area, restrooms, and approximately 1,200 square feet of exterior deck space. A ramp will lead from the walkways to the deck which faces the lake, and another ramp will lead from the deck to a trail connecting this facility with the bathhouse and the Lower Parking Area. The main building entrance will be from the deck, visually



SITE PLAN
1" = 40'

VISITORS CENTER



1" = 10'-0"

VISITORS CENTER

separating the visitor from the parking area.

The Visitor Center will be an educational facility where natural history,park history, and park information will be presented to the visitor through a series of exhibits or programs prepared by the naturalist. This facility will differ from the Environmental Education Center in that the presentations will be designed for a high turnover rate of visitors, allowing a large number of people to quickly gain some insight into the park and the natural processes going on around them. For more extensive information, the visitor will use the programs available at the Environmental Educational Center.

The Upper Picnic Area is located southeast of the Upper Parking Area and is presently being rehabilitated by the park staff and the Young Adult Conservation Corps. Much of the work previously described has been completed, but additional work will be necessary to improve the existing surface drainage conditions.

Because this picnic area is accessible to the handicapped only by driving to a picnic site along a narrow service road, and because handicapped access to the existing toilet buildings in the area is extremely difficult, the Upper Picnic Area will not be made accessible to the physically handicapped. However, renovations at the bathhouse will provide accessible toilet facilities.

At the southern end of the parking bay adjacent to the service road to the bathhouse, four handicapped parking spaces will be designated. In addition, a drop-off area will be constructed in the existing service vehicle parking area at the bathhouse. Large timbers will be placed to retain a compacted gravel surface and to

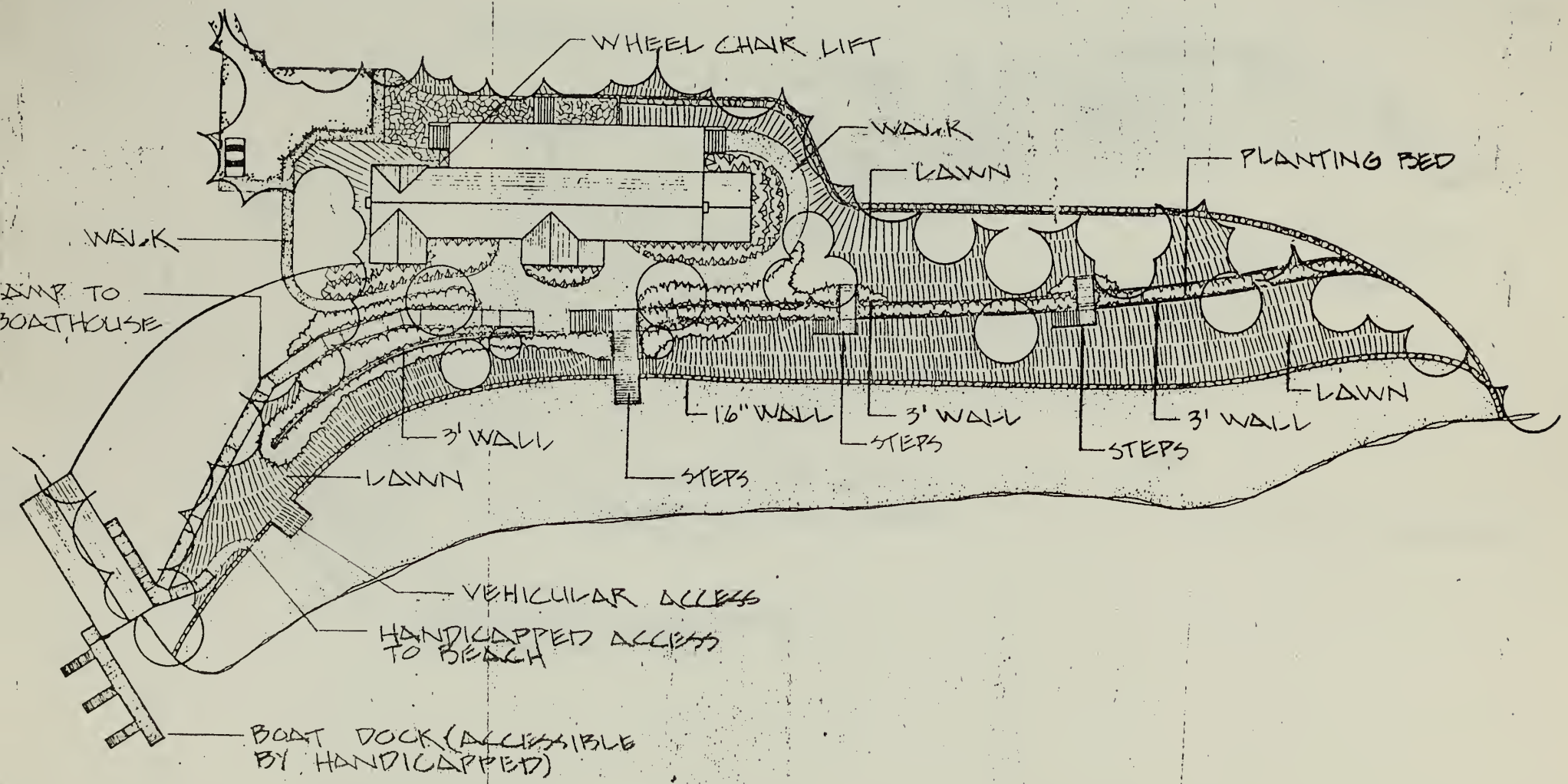
delineate the edge of the area. A hard-surface walkway, perhaps using native stone, will extend around a portion of the parking area and lead to access points to both levels of the bathhouse. Also, a trail linking the bathhouse to the Visitor Center will begin here.

Handicapped access to the upper level of the bathhouse will be provided through the installation of a wheelchair lift located at the northern end of the bathhouse between the steps to the upper level and the building.

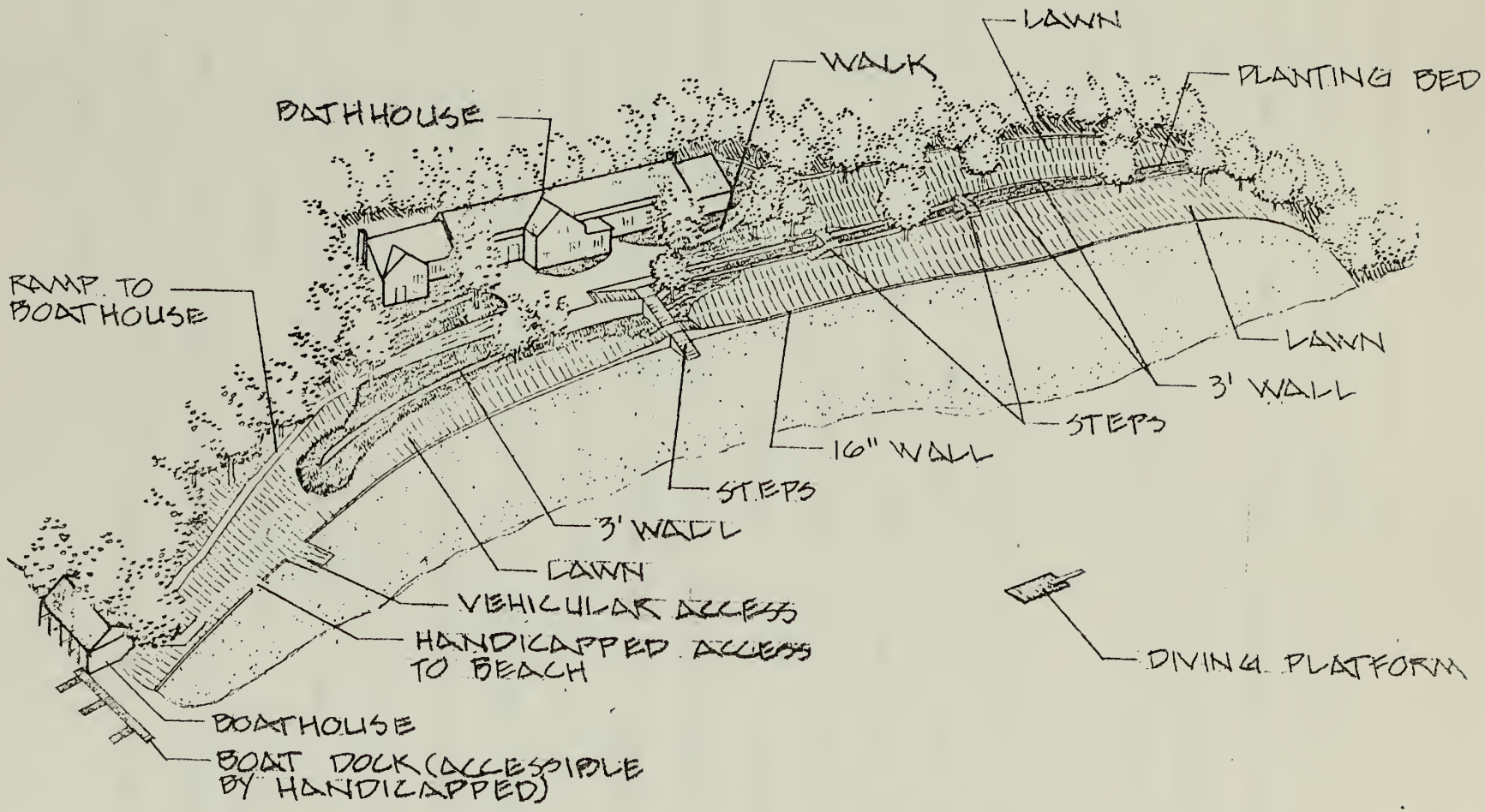
From the handicapped parking/drop-off area, a hard-surface walkway will lead westward through an existing service entrance to the front of the bathhouse, where the exits from the dressing rooms are located. To make the lower level of the bathhouse handicapped-accessible, the walkway will be constructed following the accepted standards for access by the handicapped, the existing footbaths will be removed, and the dressing areas will be renovated as required.

The walkway will extend southward in front of the bathhouse to a terrace from which access to the beach and to the bathhouse will be provided. From this terrace, the walkway will continue around the southern end of the bathhouse to the existing steps from the upper level of the bathhouse.

To eliminate erosion problems, a series of sloping terraces will be constructed between the bathhouse and the beach, and the slope of the beach will be reduced from 20 percent to less than six percent. Here, an extensive amount of earth-moving will be required to reduce the existing grade and several retaining walls will be constructed to handle the transition between the different levels. Several sets of steps, one located near the entrance to the dressing rooms, and two other sets of steps located south of the bathhouse, will allow people to move easily from the bathhouse to the beach.



SWIMMING AREA



SWIMMING AREA

In addition, native plant materials will be transplanted to the bathhouse grounds. Planting beds will be located between the bathhouse and the walkways and between the retaining walls to help control pedestrian movement and soften the effect of the walls. Plants such as rhododendron, mountain laurel, gooseberry sourwood, and dogwood will be moved from designated locations within the park to the planting beds.

A series of ramps at an 8.33 percent grade and landings will be constructed to provide handicapped access to the boathouse and from the boathouse to the beach. Near the bathhouse, the ramp will be below the surrounding finished grade and also function as a retaining wall, but near the boathouse, it will be elevated above the existing grade to maintain the required percent of slope. Access to the beach by service vehicles will be provided by a ramp from the lawn area to the sand near the northern end of the beach.

The boathouse will be modified to make entry and egress from the rental rowboats easier. On the northwestern corner of the boathouse, a small deck and boat dock will be constructed with its finished elevation approximately the same as that of the top of the side of the rowboat. A short ramp down to the dock will provide access from the floor of the boathouse. Using this dock, the less mobile park visitor can avoid using the narrow walk and having to step down into the boat.

The observation tower on Moore's Knob affords an excellent view of the park and the surrounding landscape, but the tower is badly in need of renovation, especially the deck, handrail, and stairs. Temporary renovation measures have included replacing the existing wooden decking and rewelding the loose and broken portions of the handrails, and pickets. Later when funds become available, the existing door and windows will be closed with matching stone masonry, and the existing deck and stairs will be replaced with reinforced concrete. In this manner, the tower will be permanently repaired and ready for many more years of use.

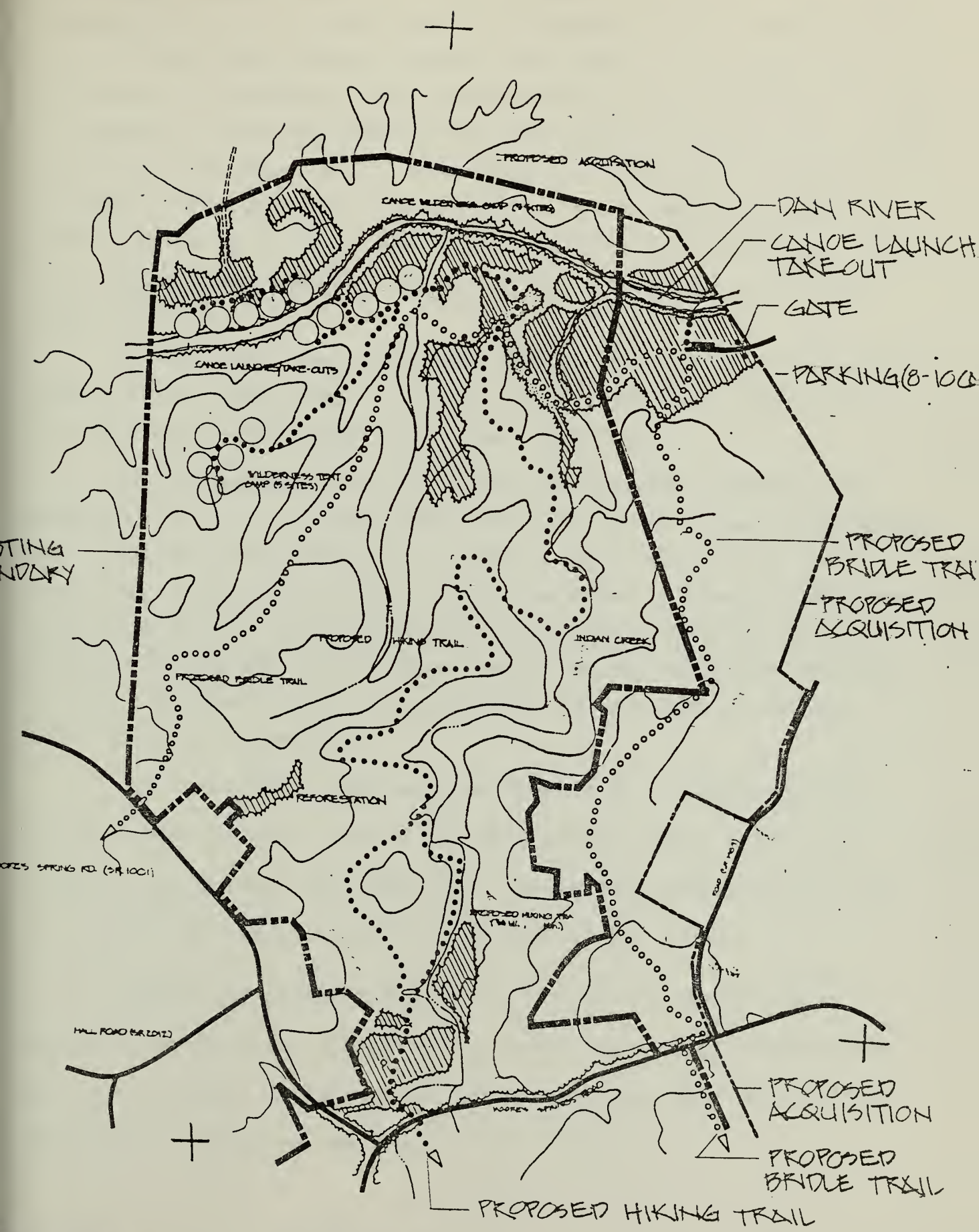
INDIAN CREEK

The Indian Creek area consists of 457 acres extending northward from the existing park entrance to the Dan River. The major features of the site are Indian Creek, the landforms and vegetation surrounding the creek, and the Dan River. There are presently no facilities or trails existing in the Indian Creek area, often referred to as the Dan River Corridor, and access is limited.

Entrance into the southern portions of the tract is by a dirt road turning onto the property 450 feet west of the existing park entrance and dead-ending 600 feet into the site at an abandoned farm. Access into the 47-acre tract north of the Dan River is by a dirt road across private land turning south from N.C. 89, less than a mile west of the intersection of Routes 8 and 89.

The Indian Creek area will remain relatively undeveloped. A hiking trail from the main body of the park will cross Moore's Springs Road and lead to the Dan River. With portions of the alignment located on the ridgetops, on the side slope, and along the west bank of Indian Creek, the hiker will move through several different landscapes which will serve to make the hike more interesting.

In the third phase of the equestrian trail development, a trail from the Lower Cascades will cross Moore's Springs Road lead down the ridgeline to the river. Here, the trail will follow an existing road alignment eastward approximately a third of a mile before turning southward and again following an existing road alignment toward the main body of the park. Approximately 300 feet west of Piedmont Springs Road, the equestrian trail will cross Hanging Rock Park Road and continue its loop around the park.



INDIAN CREEK

Near the Dan River, two canoe camps, a backcountry camp, and a parking area will be developed. The camps will be primitive with only the basic facilities, a water source and a vault-type toilet or pit privy. In addition, each campsite will be approximately 200 feet in diameter. The gravelled parking area will be located on the south side of the river and will accommodate ten vehicles. It will be reached by following an existing road alignment approximately 300 feet from the end of S.R. 1487 at the proposed park boundary. From the parking area, canoeist can make a short portage to the canoe launch landing.

To the west, one canoe camp will be sited in the edge of the forest on the south side of the Dan River. The camp will consist of five campsites located near a canoe landing.

On the western portion of the land presently within park ownership north of the Dan River, the second canoe camp is proposed. This camp will also consist of a canoe launch/takeout and five campsites located in the forest near the river. However, additional damand beyond the capacity of the first canoe camp would have to warrant development of this camp, and an access agreement for park service vehicles to cross the private land adjacent to the site would have to be reached.

The backcountry camp will be located on a ridgetop south of the river near the western boundary of the Indian Creek area. Sited in the forest, the camp will include five campsites and will be reached by a short trail off the main hiking trail.

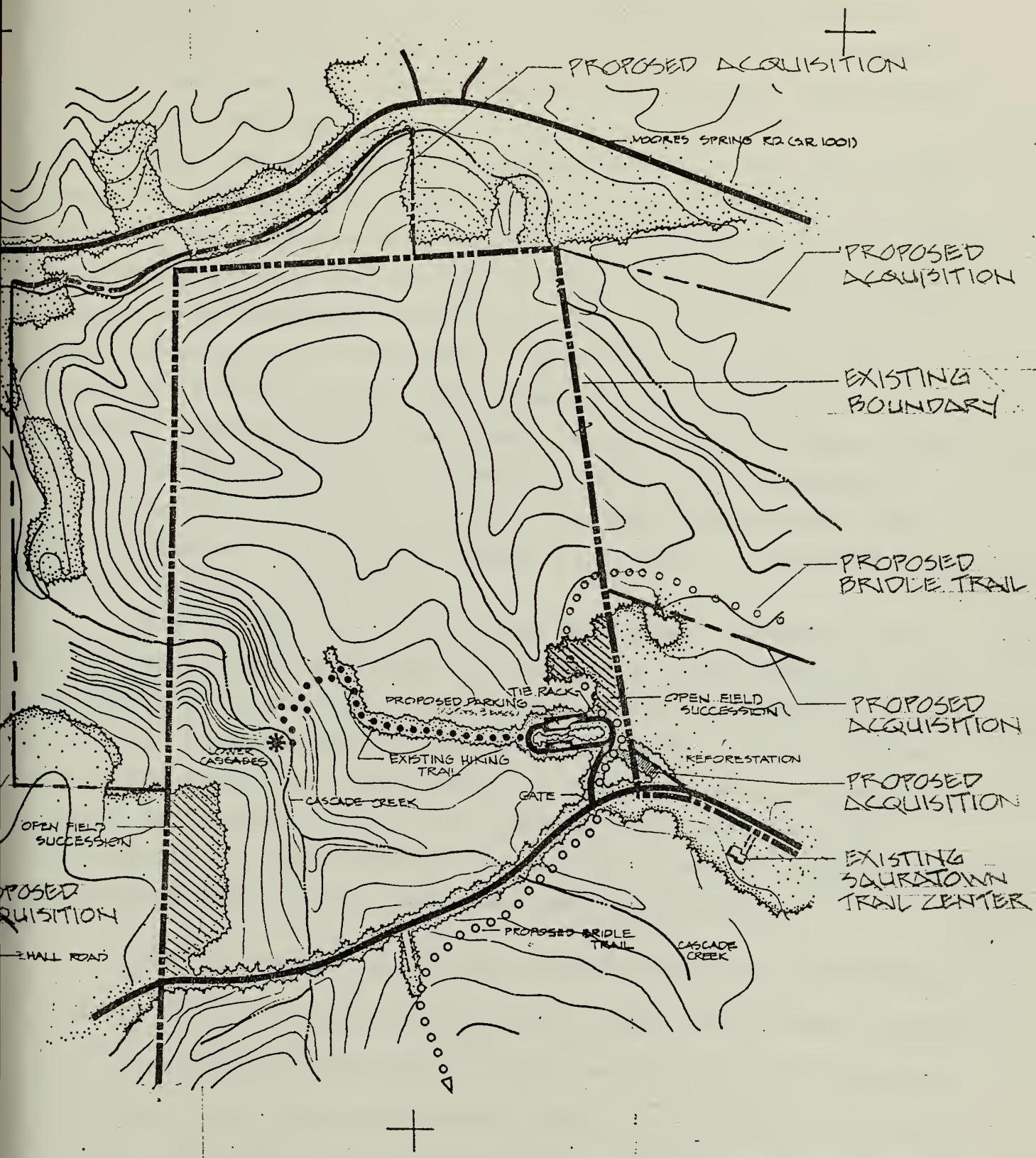
Before the equestrian trail or the ten car parking area could be constructed, approximately 149 acres east of Indian Creek will be acquired. This acquisition is essential not only for this development, but also for resource protection.

LOWER CASCADES

The Lower Cascades area consists of 91 acres on the north side of the park, less than a mile west of the main park entrance. The major feature here is Lower Cascades Falls which plunges through a heavily wooded rock gorge to a small pool under a sheer rock face and overhang. Both Carolina Hemlock (Tsuga caroliniana) and Canadian Hemlock (Tsuga canadensis) are found growing together along this scenic gorge. As explained by Doctor Hollis Rogers and Superintendent John Barnett (1968), specific soil conditions account for the existence of the Carolina Hemlock on the rocky slopes above the creek and the Canadian Hemlock in the deeper alluvial soils of the stream's floodplain.

Presently, access into the site is by a dirt road turning north from Hall Road or S.R. 2012, and crossing private land before entering the park ownership. Visitors to the Lower Cascades park at the park boundary park and walk down the old roadbed a half mile to the point where the trail leaves the road and turns down the slope. Numerous trails have been made down the hillside to the floor of the gorge, and this uncontrolled access has resulted in severe erosion and soil compaction.

Several measures will be taken to alleviate these problems. First, a new access road and parking area will be constructed entirely within the park boundary. Near the southeastern corner of the tract, the new access road will turn north from Hall Road and then west into a parking area for twenty cars and three buses, located on the existing roadbed and in the edges of the surrounding pine forest. For visitors on horseback, tie racks will be provided near the parking lot so that they may leave their horses and walk to the Lower Cascades.



LOWER CASCADES

From the proposed parking lot, the existing roadbed will continue to be used as the trail; however, erosion and drainage control measures will be necessary to prevent further degradation of the trail surface.

Major rehabilitation is proposed for the trail and severely impacted areas on the slope from the roadbed to the floor of the gorge. First, controlled access will be achieved by providing one well-designed trail and closing all other trails down the slope. Wooden steps, landings, boardwalks, and a completely rehabilitated trail tread will be constructed, in addition to fencing and the planting of native shrubs where necessary. To rehabilitate the severely compacted and eroded areas, topsoil will be replaced and native vegetation will be planted to stabilize the slopes and control erosion. In addition, all open field areas within the Lower Cascades tract will be allowed to return to a forested state through natural succession.

South of the site, across the Hall Road, a section of the park's equestrian loop trail will be located along the wood's edge. The trail will cross Hall Road and follow the new access road to the Lower Cascades parking area where tie racks will be provided. From here, the trail will continue to the existing Sauratown Trail Center as proposed in the first phase of the equestrian trail development, or lead eastward toward Indian Creek as proposed in the second phase of the equestrian trail development.

With the expansion of park facilities and the accompanying increase in public use and maintenance needs, a new ranger residence will be required in the area. It will be built near the existing Sauratown Trail Center outside the Lower Cascades tract, but close enough to the use area to provide the needed security and permit effective management.

Additional land acquisition is needed at the Lower Cascades

to provide for development and for protection of the resource both physically and visually. Approximately 26 acres will be acquired to expand the western and northern boundaries, and approximately one acre will be acquired east of the proposed parking lot to expand the southeastern boundary. To the east of the Lower Cascades tract, another 73 acres will be acquired for the development of the equestrian trail system.

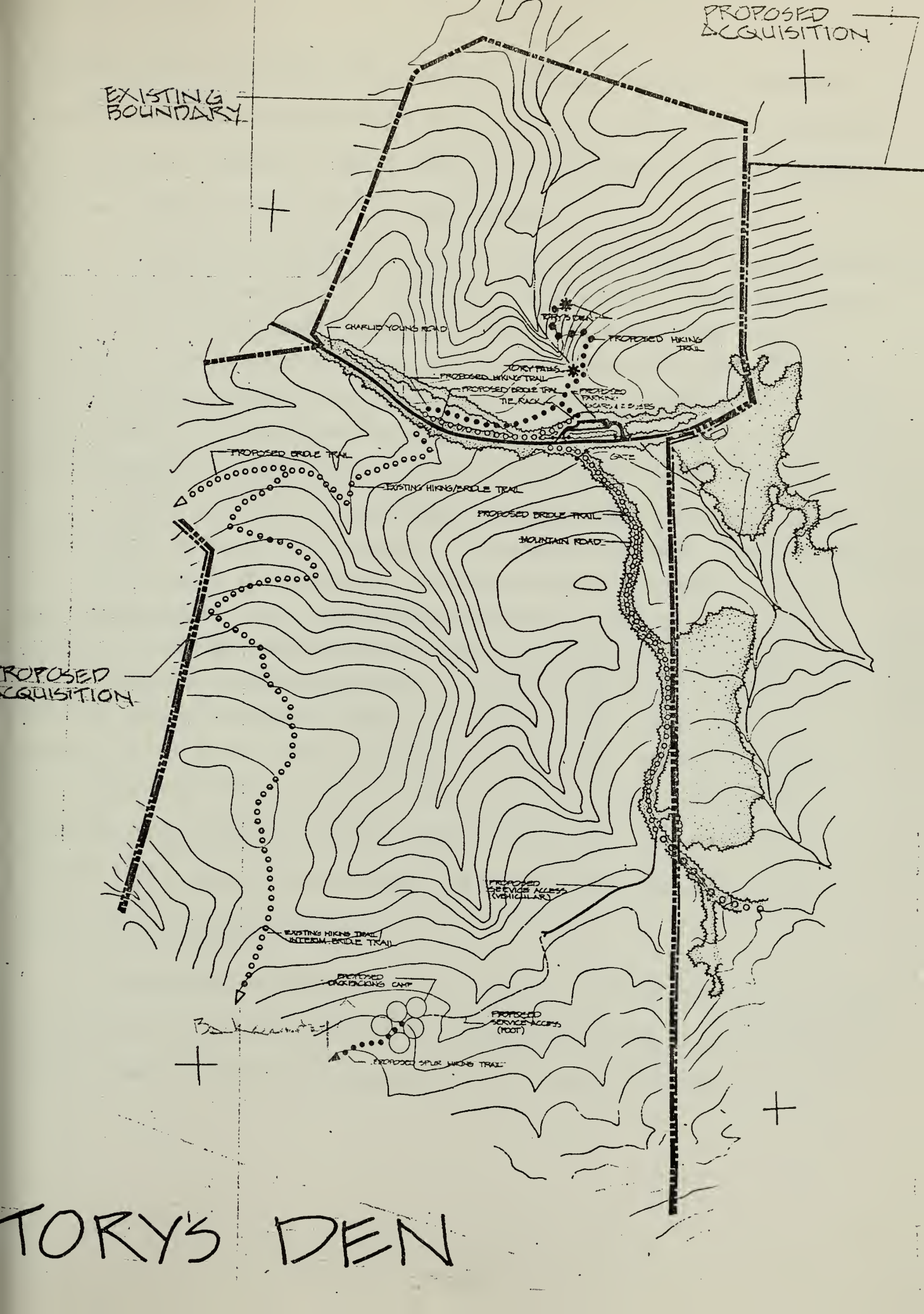
TORY'S DEN

The Tory's Den tract consists of approximately 86 acres located north of Charlie Young Road S.R. 2028, one tenth of a mile east if its intersection with Mickey Road, S.R. 2011. The major features here are a cave for which the site is named and Tory's Fall, a small waterfall south of the cave.

There are no designated parking areas on the park land adjacent to Charlie Young road, requiring cars to park on the roadside near a private residence. From the trailhead now located across the road from this residence, the visitors walk a quarter-mile down several steep slopes to Tory's Den. Since this area has had only minimal use, erosion and compaction are not yet major problems, but preventive action must be taken.

To eliminate the roadside parking, a parking lot for sixteen cars and two buses will be constructed within an existing cleared telephone line right-of-way parallel to the road. Located approximately a half-mile east of the intersection of Charlie Young Road and Mickey Road, the parking lot will be more than 500 feet west of the present roadside parking area and trailhead near the residence. As at the Lower Cascades, tie racks for horses will be located near the parking lot, and riders will be required to leave their horses there before walking the short distance to Tory Falls and Tory's Den.

The trailhead will be moved from its present location to the site of the new parking lot. Using accepted construction methods, a new trail utilizing portions of the existing path will be developed. Timber steps, stairs, boardwalks, and foot bridges will carry park visitors across the stream and down the steep slopes to Tory's Den, and prevent soil erosion and compaction


PROPOSED ACQUISITION
EXISTING BOUNDARY
CHARLIE YOUNG ROAD
TORY'S DEN
PROPOSED HIKING TRAIL
TORY PATHS
PROPOSED HIKING TRAIL
PROPOSED BRIDLE TRAIL
TIE RACK
PROPOSED PARKING
GATE
PROPOSED BRIDLE TRAIL
EXISTING HIKING/BRIDLE TRAIL
PROPOSED BRIDLE TRAIL
MOUNTAIN ROAD
PROPOSED ACQUISITION
PROPOSED SERVICE ACCESS (VEHICULAR)
EXISTING HIKING TRAIL INTERIM BRIDLE TRAIL
PROPOSED BACKPACKING CAMP
PROPOSED SERVICE ACCESS (FOOT)
PROPOSED SPUR HIKING TRAIL
TORY'S DEN

from becoming problems. As in other areas of the park, there are numerous trails leading from different points to the natural features of the site. Access to these trails will be closed allowing natural recovery once the new trail is constructed.

A multi-use hiking and interim equestrian trail, linking Tory's Den to the Sauratown Trail, runs south from Charlie Young Road. However, once the proposed equestrian trail loop around the park is complete, this multi-use trail will be only for hiking except for a short section needed for connection with the proposed bridle trail. A spur trail will lead northeastward off the hiking trail to a five-site backcountry camp, one of two camps proposed within the park.

Mountain Road, intersecting Charlie Young Road approximately a half-mile east of its intersection with Mickey Road, provides access to a second-home subdivision on the slopes west of Moore's Knob. Mountain Road is not a state-maintained road and portions of it, including the intersection with Charlie Young Road, are within the park. The master plan proposes to gate this road and close it to traffic within the park boundaries, using it for staff service access and as part of the equestrian trail loop. Approximately a half-mile southeast on Mountain Road from its intersection with Charlie Young Road, the staff service access will turn south and follow an existing roadbed while the equestrian trail will continue along Mountain Road.

The staff service access will follow the roadbed until it terminates in a foot trail, allowing maintenance access to the backcountry camp. East of the present park boundary, south of Charlie Young

Road, a new ranger residence will be located to house the additional staff required by the expansion of park facilities in this area.

Acquisition of land on both the east and west sides of the existing park is recommended for several reasons. First the land will afford both physical and visual protection of the wooded slopes north of Moore's Knob which are in danger of being timbered or further subdivided for second-home sites. Secondly, these additional lands are necessary for the development of the equestrian trail loop which cannot be constructed without additional land. In addition, a small tract within the lands to be acquired here will serve as the site for the proposed ranger residence.

HIKING TRAILS

More than eight miles of hiking trails are presently open within the park. The most heavily used trails are suffering badly from erosion and compaction problems, especially the Moore's Knob and Hanging Rock trails. These trails can only be improved through a major rehabilitation effort, and for this purpose trail construction details covering a range of problems are included in Appendix 4 to serve as a guide to the park staff and volunteers.

These details are sufficient to indicate rehabilitation of most of the trails, but to improve the Hanging Rock Trail, a major portion of the trail will be realigned to avoid slopes on the existing trail which exceed 22 percent. A new trailhead will be located at the midpoint of the southernmost bay of the Lower Parking Area; several parking spaces will be removed, and an island formed at the beginning of the new trail. From this point, the trail will be on the side-slope down to Indian Creek where the existing Hanging Rock Trail crosses the creek. The new trail will then continue southeasterly along the side slope, rising to tie into the Cook's Wall Trail approximately 400 feet south of the intersection of the Cook's Wall Trail and the existing Hanging Rock Trail. From that point, the existing trail alignment with be followed to Hanging Rock itself. The new trail will be approximately 1,600 feet longer than the existing trail and have an average slope of 10.5 percent. Proper trail construction techniques will be employed here to avoid the erosion and compaction problems whieh are now visible on the existing trail.

After the new portion of the Hanging Rock Trail opens, the existing trail will be closed and efforts made to replace the eroded soil and revegetate the distrubed areas.

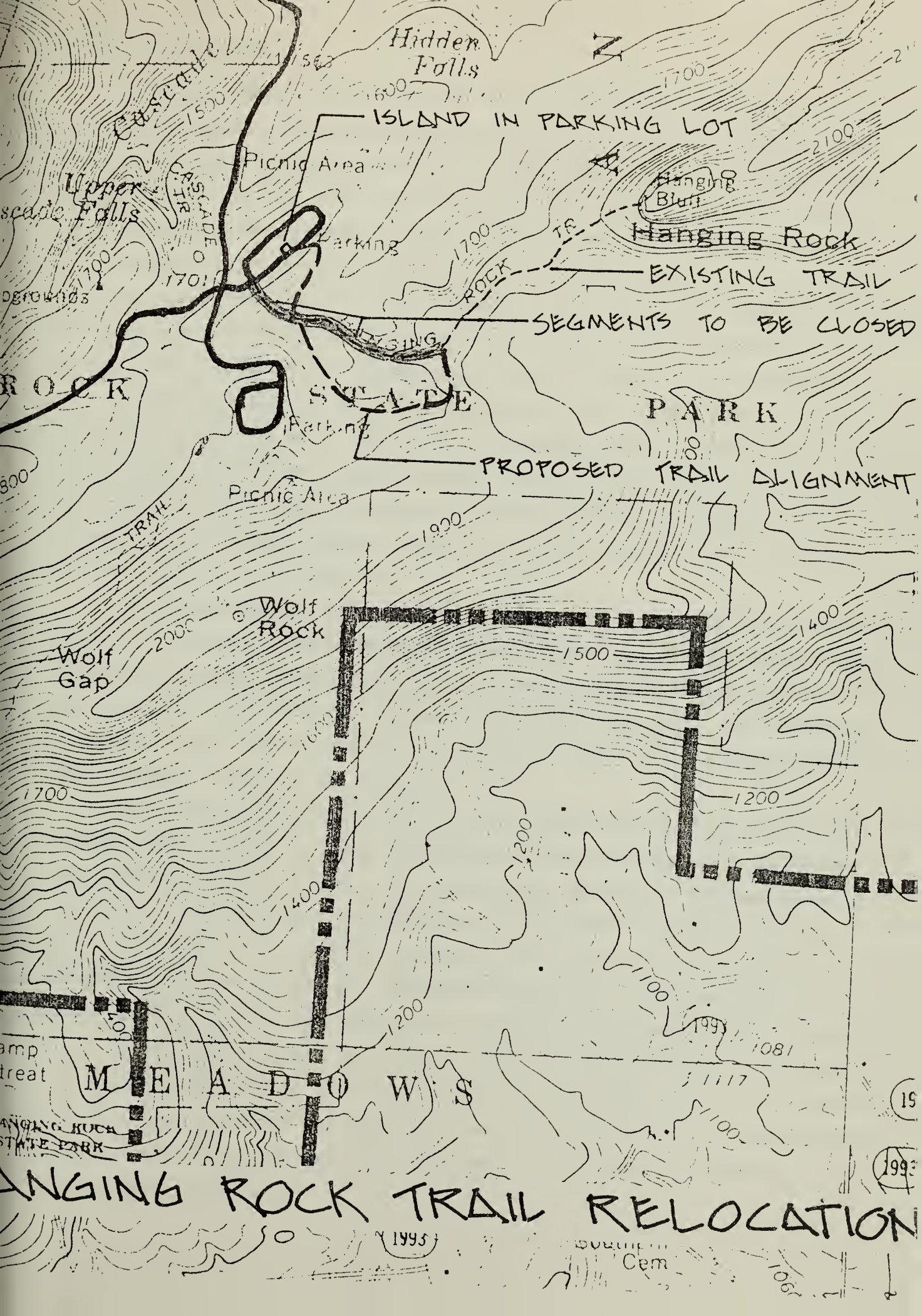
The Moore's Knob Trail is suffering greatly from erosion and compaction precipitated by heavy use and its location on steep slopes. Rehabilitation of the trail tread may eliminate some of these problems, but because the trail passes through the camping area, day-use activities often conflict with overnight or long-term use. For example, some trail users park their vehicles in the campsites near the trail rather than in the Upper Parking Area at the trailhead. For these reasons, a segment of the trail should be relocated.

The portion of the Moore's Knob Trail from the trailhead to just west of Indian Face will be closed. The new trail will follow an existing path from the lake toward Huckleberry Ridge, but will turn northwestward from this trail approximately one-half mile west of the lake. The realigned trail will be located on the side slope and will use switchbacks several times in order to make the grade transitions easier. The trail will come within 700 feet of the campground at its closest point, but will be sufficiently screened from the campground by the topography and vegetation.

The proposed trail will be approximately one mile longer than the existing route, but being much less steep, will be easier to hike. Again, proper trail construction techniques will be employed to prevent some of the problems that have lead this relocation.

Several new trails will be built under the master plan. The Indian Creek Trail will link the central park activity zone to the Dan River. This two-mile trail will lead southeastward from the

Hanging Rock Trail and will be located on the slopes above Indian Creek. In the Indian Creek use area, two short trails will link the backcountry camp and the canoe camp to the Indian Creek Trail. At Tory's Den, the trail will be realigned to provide a trailhead at the proposed parking and to provide better access to Tory Falls and to the den itself. Access to the second backcountry camp located in the western section of the park will be provided by a short trail off the Ruben Mountain Trail.



ANGING ROCK TRAIL RELOCATION

EQUESTRIAN TRAILS

The Hanging Rock State Park trail system will be expanded to include approximately 18 miles of horseback riding trails looping around the park perimeter outside the central activity zone. Careful trail design and location will accomplish a number of goals: conflicts between equestrian uses and the intensive park uses will be minimized; the trails will be located and constructed to prevent much of the impact on the land normally associated with use by horses; and the trail routing will be controlled to provide a private, scenic, and pleasurable riding experience in natural surroundings.

Construction of the loop trail will be in two phases. The first phase will connect Gap, at the western edge of the park, with the existing Sauratown Trail Center on Hall Road. The second phase will complete one loop around the rest of the park, including the segments to and from the Dan River, and a new equestrian trailhead and camp will be provided.

The existing Sauratown Trail Center will be phased out during the second stage of horseback trail development. Its function as an information station will be moved to the park office, and once constructed, to the Visitor's Center. This shifting will be necessary to control use of the trails and provide a measure of protection to the horseback riders and campers.

The new equestrian trailhead and camp will be located in an existing field south of Hall Road about one mile west of the existing Sauratown Trail Center. An area large enough to accommodate the loading, unloading, and parking of at least ten horse trailers will be provided, as well as a series of the racks for control and separation of the horses. The area selected for this activity is large enough that it can easily be expanded to accommodate increased use

In order to serve overnight campers, ten primitive campsites will be provided close to the tie racks and parking area. The camping area will be relatively primitive; general locations will be designated for camping and cooking, and a water source and pit toilets will be provided nearby.

Construction of the equestrian trails will be dependent on either land acquisition or the granting of trail easements by land owners since most of the proposed tract is outside of the existing park ownership. The spirit of cooperation evident in the planning and building of the Sauratown Trail has proven that an informal partnership between landowners, trail users, and the state is a workable method of providing needed recreation opportunities. With this same spirit, this new horseback riding trail can be provided much more quickly than if delayed by waiting for the state to purchase either land or easements.

PRIMITIVE HORSE CAMP (typical)

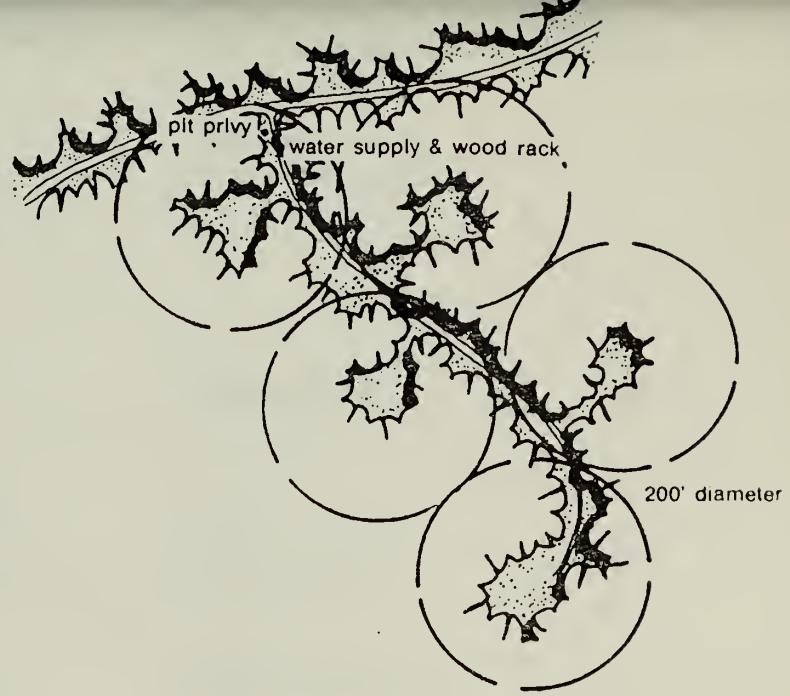
NO SCALE

NOTES:

A minimum distance of 300' should be maintained between tie racks and campsites

Pit privy could be replaced with a vault-type toilet if vehicular access is maintained

Each campsite will have a fire circle



SPUR TRAIL CAMPSITES

BACKCOUNTRY CAMP (TYPICAL)

NOTES:

Each campsite will have a fire circle

Campsite location will be a minimum of 25' from spur trail

Vault-type toilet could be substituted for pit privy if vehicular access is provided. Max. 20' from trail.

NO SCALE

Activity Area	Use Capacity	Parking Requirement	User Information	Turn-over Multipler	Optimum Users/Day
MAIN PARK					
Group Camping	80		organized groups only; primitive camping	1	80
Ranger Residences					
3 existing residences					
1 existing Superintendent's residence					
Park Office	100	8	3 people/car	8	192
Maintenance & Service Area					
Family Cabins					
6 cabins	36	12	6 people/cabin	1	36
4 cabins (proposed)		8	6 people/cabin	1	24
Family Tent & Trailer Camping					
74 campsites	296	74	4 people/campsite	1	296
Lower Parking Area		450			
60 Picnic Tables	480		4 people/table	2	480
Environmental Education Bldg. (proposed)					
Hiking Trails *			40 people/hour	8	320
Upper Parking Area		350			
60 Picnic Tables	480		4 people/table	2	480
Bathhouse & Beach	3000		1500 people cap.	2	3000
Boathouse/10 boats	240		3 people/boat	8	240
Fishing	25			2	50
Visitor Center (proposed)					
Hiking Trails *			75 people/hour	8	600

Activity Area	Capacity	Requirements	User Information	Over Multiplier	Optimum Users/Day
LOWER CASCADES	80				
Parking (proposed)		20 cars	3 people/car	2	120
Ranger Residence (proposed)		3 buses	30 people/bus	1	90
Horse Camp & Equestrian Trailhead (proposed)		10 cars/trailers		1	25
TORY'S DEN	50				
Parking (proposed		16 cars 2 buses	3 people/car 30 people/bus	2 1	96 60
Information Station (proposed)					
Backcountry camp (proposed)			5 sites 3 people/site primitive camping	1	15
Hiking Trails *					
Ranger Residence (proposed)					
INDIAN CREEK					
Parking (proposed)		10 cars			
10 Canoe Campsites (proposed			3 people/campsite primitive camping	1	30
Backcountry Camp (proposed			5 sites; 3 people/campsite primitive camping	1	15
Canoe Launches (proposed)			4 people/launch	2	80
Hiking/Horse Trails*					

*Trails

Turnover Rate 1.7: 15 people/mile
6: 30 people/mile

Activity	Existing Use Capacity	Parking Requirements	User Information	Turn-over Multiplier	Optimum Users/Day
Trails (cont.)					
Hanging Rock	250			6	300
Moore's Knob	41			1.7	41
Upper Cascades	75			6	150
Hidden/Window Falls	75			6	108
Lower Cascades	80			6	210
Indian Creek loop (proposed)				6	126
Indian Creek (proposed)				1.7	36
Tory's Den	50			9	156
Chestnut Oak Interp.	100			6	150
Ruben Mountain	35			1.7	46
Equestrian Trail (proposed)			18 miles	2	108
TOTALS	5573	963			7682

Note: "Optimum users per day" assumes full use of all facilities throughout the entire park day, and does not correspond to total park attendance per day. Park users typically take part in a number of different activities during one visit, so even on a peak use day, total attendance does not accurately reflect actual activity use per day.

PARK MANAGEMENT CONSIDERATIONS

SERVICES FOR PARK USERS

As in other state parks, programs are currently in practice for visitor protection, law enforcement, and visitor information at Hanging Rock State Park. All North Carolina State Parks are protected and governed by law, and the State Parks Rules and Regulations are a part of the North Carolina Administrative Code found under Title 15, Department of Natural Resources and Community Development, Chapter 12, entitled Parks and Recreation Area Rules. The Park Superintendent enforces these rules for the protection of both the resource and the park visitor.

Routine patrols by park personnel, as well as a good working relationship between the park staff and the local law enforcement agencies, have provided adequate protection of the visitors and their property. Additional security is provided to the overnight visitor by locking the park gate after closing hours.

Patrol of the park's use areas, roads, and trails is accomplished systematically by foot and vehicle, and mobile patrol units, like the park office, are radio-equipped. When the equestrian trail system is completed around the park, patrol of the boundaries and trails on horseback should be considered as an alternative to using motor vehicles to patrol these areas.

The rugged terrain, combined with the nature of the park use, has created specific needs for visitor safety. Close liason with the local emergency medical service teams and rescue squads

has been established, and emergency procedures have been developed to reach those who may become ill or injured while in the park. A pay telephone, which may be used for emergency situations, is located at the park office.

A well designed and up-to-date information system for the park is essential to orient visitors to the location of park facilities, trails, features, and available to acquaint the visitor with park regulations and philosophy. The park office provides information on activities through the use of displays and brochures, as well as verbal communication; supplementary information is available at various use areas on display boards and in pamphlet-dispensing boxes. A trail map illustrates the location and destination of hiking and interpretive trails, while pamphlets, signs, or exhibits describe points of interest on each trail.

The Division of Parks and Recreation is committed to providing access to its facilities to as many people with physical and mental disabilities as possible. All newly constructed facilities are designed and built to provide this access, but the Division is also in the process of upgrading its older activities, The schedule of proposed access construction at Hanging Rock State Park is contained in Appendix 3.

USER CONFLICTS

Due to the nature of certain park activities, some conflicts among different types of park uses are inevitable. Careful facility design, location, and management efforts are used to reduce or eliminate these conflicts.

Dispersing use and separating incompatible activities are very effective tools in reducing problems. For example, overnight uses like camping are located in areas which are relatively isolated from the major day use activities such as picnicking, swimming, and hiking; group camping areas, even though overnight uses are separated from the family camping areas; and providing new areas like those at the lower Cascades and Tory's Den can effectively lower the intensity of use at older areas by drawing park users to a new and different set of experiences at the new location.

One combination of uses that almost always produces conflicts is that of hiking and horseback trails. Some hikers are offended by horse waste or threatened by meeting horses on the trails, while some riders have difficulty restraining their mounts when meeting hikers on trails. When the equestrian loop trail is completed, less than one-half mile of trail will be shared by hikers, but as use intensifies, the probability of conflict will increase.

To administer the equestrian and hiking trail program, all trail users must be informed which trails are designated for a particular user group, and must then be alert to the possibility of conflicts. The hiking trails will be for the specific use of hikers only, but the equestrian trails will be usable by both horseback riders and hikers; the people choosing to hike the equestrian trails must be informed and prepared to cooperate with the equestrian users. Rules will be established to regulate multi-use trails, signs clearly identifying permitted trail uses will be installed, and pamphlets will be developed to educate hikers and horseback riders on the cooperative use of the trails.

ENVIRONMENTAL CONSIDERATIONS

Resource protection is an important facet of park management. Park boundaries must be well marked and patrolled regularly to prevent encroachment, development of unauthorized trails, game poaching, or other undesirable uses. Sureying the park boundary and marking all corners with concrete monuments are essential since questions often arise as to the exact location of a property line when other land uses encroach upon the park.

Adverse conditions may occasionally warrant the closing of all or portions of the park for resource and visitor protection. Examples of these conditions include: fire or severe fire hazard, flood, hazardous driving or traveling conditions, mud slides, dangerous wildlife, or drastic reductions in manpower which affect safe administration of a site or program.

Certain areas of the park, such as the Lower Cascades, require some control in terms of the number of people in the area and the degree of their freedom of movement. The most effective measure is control of the total number and location of vehicle parking spaces. A limited number of spaces limits the number of visitors in the park at a time, since parking is not permitted in unauthorized areas. Other methods of control include gates, railings, vegetative screens, berms, other visual and physical barriers along roads and trails, proper road and trail location, and a public education program on the merits of resource protection.

The physical distribution of the visitors within the park is

also a major management and environmental consideration. With the development of the peripheral use areas, park use will be dispersed somewhat; however, certain areas will continue to receive intensive use. The Upper and Lower picnic areas, the bathhouse/beach complex,and the trails within the bowl of the park have required a concentrated management and maintenance effort which must continue in order to preserve the natural resources and to provide a high quality recreational experience.

Of special concern for resource protection, especially water quality, is the control of horses within the park. The concentration of horses at the unloading area and equestrian camp may cause a fuild-up of manure. A three-foot-high berm and interceptor ditch should be constructed below these facilities to intercept water-contaminated run-off before it can reach the nearby stream. In addition, the proposed equestrian trail will be located on the ridges and on suitable side slopes away from streams where possible, and stream fording minimized.

The horseback trails will be located to protect vegetation along the route as much as possible, and the riders must prevent their horses from browsing along the trails to reduce damage to the vegetation. The trail tread of the trails will be constructed to withstand the heavy impact of horse use, and will limit erosion and soil compaction.

Licensed fishermen may fish in the Dan River or in any streams within the park as well as from the bank or in the rental rowboats on the twelve acre lake.

With the accumulation of natural sediment, a marshy area has

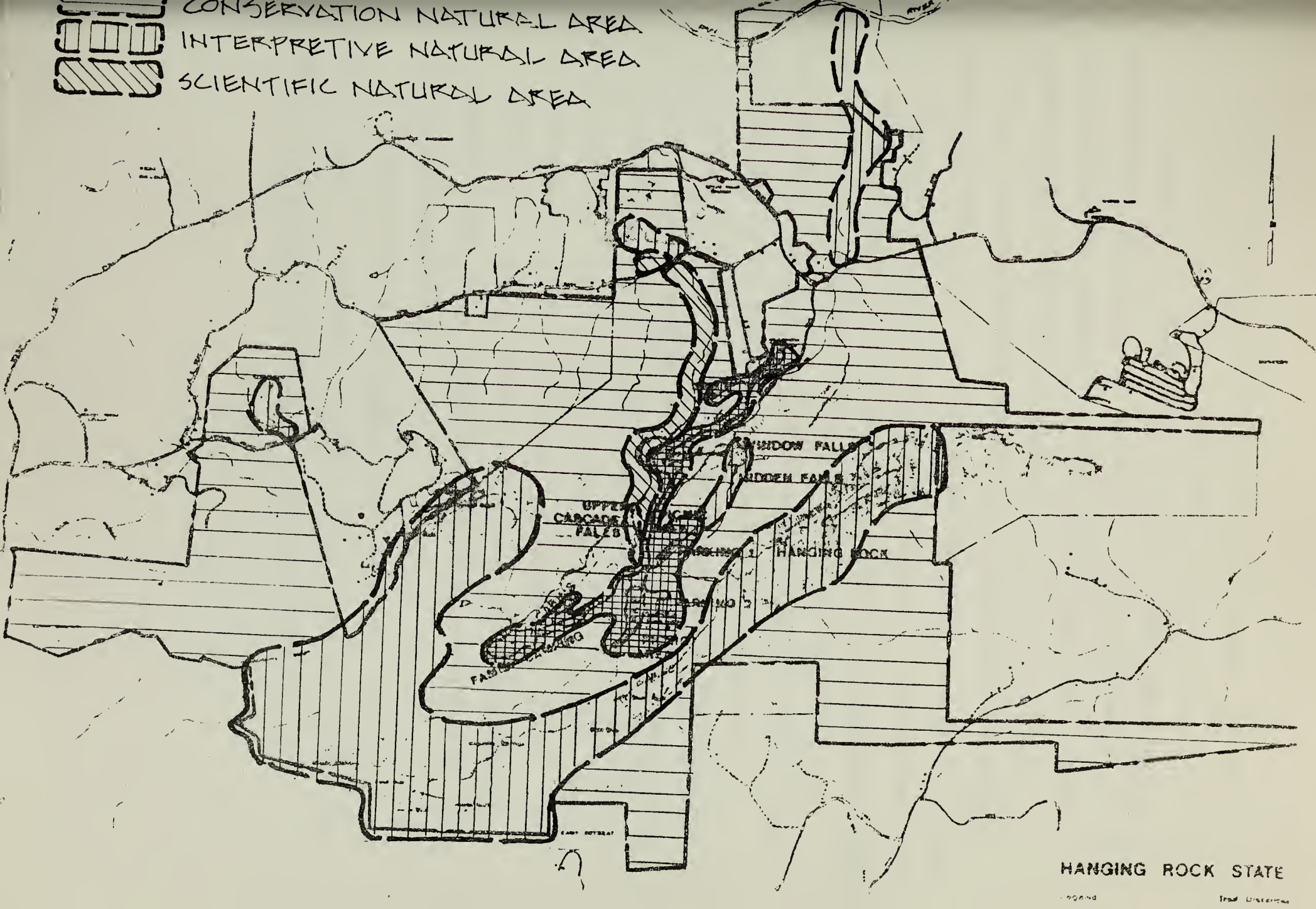
developed in the upper reaches of the lake providing an excellent wildlife habitat. However, the amount of sediment entering the lake is very small, and interference with other lake activities will be negligible.

Sewage waste treatment has been managed successfully in the park through the use of septic tanks. Any septic tanks used in future developments will be located a minimum of 50 horizontal feet from any stream or water body, but a 100-foot buffer is more desirable if practical. In addition, the Stokes County sanitarian must approve the location of any new septic fields or wells in the park.

NATURAL AREA

A natural area is defined as a designated area where natural processes are allowed to predominate and which are preserved for the primary purposes of resource conservation, scientific research and outdoor education. The three specific types of natural areas are: the conservation area, the interpretive area, and the scientific areas. Scientific areas are to be managed primarily for scientific use and for the preservation of natural features in an undisturbed state. Interpretive areas are established for education and interpretive use. Conservation areas are undeveloped lands set aside for a natural feature or for scenic protection, but also suited for limited recreational use.

The designated Park Natural Area will serve primarily as an educational and scientific resource, encompassing all park land except the developed day and overnight use areas in the Central Park Activity Zone. Plants occurring in the natural area and recognized as being of special significance by botanists at the 1975 Symposium on Endangered and Threatened Biota of North Carolina include: *Arenaria groenlandica* var. *groenlandica* (threatened peripheral), *Fothergilla major* (endangered peripheral), *Heuchera pubescens* (endangered peripheral), and *Quercus ilicifolia* (threatened peripheral). The largest North Carolina population of the latter species occurs at Moore's Knob and Wall. In addition, a rare salamander, *Plethodon wehrlei* has been collected at Hanging Rock and nowhere else in the state. Of geological significance is the occurrence of "flexible sandstone" (Itacolumite) at Cook's Wall, one of the few known sites in the world.


CONSERVATION NATURAL AREA
INTERPRETIVE NATURAL AREA
SCIENTIFIC NATURAL AREA
HANGING ROCK STATE

In specific terms, the scientific area will include the gorge and slopes above Cascades Creek from the Upper Cascade Falls to the Lower Cascade Falls where Carolina Hemlock (Tsuga caroliniana) and Rhododendron communities are prevalent. Other proposed scientific natural areas not presently in the park but which may be protected through conservation easements in the future include: a site on a north-facing bluff on the Dan River north at Moores Springs on which several endangered and threatened species of plants are found, and a site on a northwest slope along the Dan River north of Danbury on which a rare plant, mountain camellia (Stewartis ovata), occurs. The interpretive areas will generally consist of the features which exemplify the park's natural history, including the Upper Cascade Falls, the Lower Cascade Falls, Hidden Falls, Window Falls, Indian Creek and the adjacent slopes, the ridgetops extending from Hanging Rock to Cook's Walls and from Moore's Knob to Huckleberry Ridge, and Tory's Den. Lastly, the conservation area designation will be given to all land within the Park Natural Area not classified as a scientific or interpretive area.

The Moore's Knob, Cook's Wall, Cascades Creek, and Hanging Rock Natural Areas have already been placed on the State Registry of Natural Heritage Areas.

In terms of species management, only selective cutting of the overstory will be necessary to prevent shading out of the bear oak (Quercus ilicifolia) population at Moore's Knob and Wall.

INTERPRETATION

The interpretive facilities and activities at the park will be greatly expanded so that the people now coming only to picnic and swim can also learn about the changes in the land form, vegetation and wildlife over the years that have made the park the pleasant environment it is now.

The attractive natural features which have been preserved and protected by becoming part of the park will be explained by a series of interpretive shelters and signs placed nearby. These exhibits will be informative, but not so detailed that the casual visitor will lose interest.

The signs and exhibits will encourage visitors to go to the Visitor Center close to the swimming area for more information. The Center will have interior and exterior displays relating to the natural and cultural history of the park, and in order to accommodate the large number of people using the picnicking and swimming area, will be designed to quickly and accurately inform as many visitors as possible. This quick orientation will give the people some basic information about behavior in the park and, hopefully, will pique their curiosity about the other activities they can experience.

The highest level of interpretive information will be handled by the programs in the Environmental Education Center. The Center will be developed as an educational facility, including an office and workspace for a full-time naturalist, and a combination auditorium and classroom. With this facility, intensive programs on natural

resources and park history can be developed for families, interested groups, and students of all ages.

The Visitor Center and Environmental Education Center will each be closely related to self-guided nature or interpretive trails. By following printed pamphlets or guides, visitors will be introduced to the flora and fauna along the self-guided trails. For those interested in more comprehensive information, the naturalist will be conducting guided hikes throughout the park. In addition to the daylight programs, slide programs and hikes will be available at night to the families and groups camping overnight in the park.

The combination of appropriate recreation with environmental education is a major principle guiding public use within the state park system, and the variety and significance of the natural features within Hanging Rock State Park make a comprehensive interpretive program essential.

ARCHAEOLOGY

No systematic archaeological survey has been conducted at Hanging Rock State Park, and as a result, very little information is available.

A limited amount of new construction and soil-disturbing activities are proposed in the master plan and, prior to the preparation of construction documents for capital improvement projects, an archaeological survey of the construction site will be prepared. Using this survey, detrimental effects upon the archaeological resources will be avoided.

A comprehensive Environmental Impact Statement should be developed, including a complete description of any significant archaeological sites. Also, in order to portray and interpret the park completely, a survey to determine the cultural significance of the park is essential.

LAND ACQUISITION

Hanging Rock State Park presently consists of 5858 acres of predominantly rugged terrain, but to expand park facilities and to affort greater resource protection, additional lands must be acquired. The acquisition program is divided into four priorities with 2488 acres around the park to be acquired through fee-simple purchase and 1087 acres along the Dan River to be controlled through conservation easements.

Priority 1 land includes approximately 465 acres north of Moore's Knob and Moore's Wall which will be acquired for protection of the slopes along and below Moore's Knob. Through this acquisition, the visual integrity of the northwestern portion of the park will be preserved.

A total of 708 acres are to be purchased under Priority 2 acquisition in three different areas of the park. For the purpose of resource protection and for development of the equestrian trail system,545 acres will be acquired on both the north and south slopes of Hanging Rock Ridge. At the Lower Cascades, protection of the site will be enhanced through the purchase of 27 acres expanding the western, northern, and southeastern boundaries. Between the Lower Cascades and Indian Creek tracts, approximately 73 acres will be purchased to provide the land necessary for the construction of the equestrian trail linking these two areas. To provide protection from incompatible land uses and to increase the buffer around the existing group camp, 63 acres south of Hall Road between Cascade Creek and S. R. 1001 (Moore's Spring Road) will be acquired.

Priority 3 consists of approximately 1315 acres which would be purchased. In addition to providing a land base for the

equestrian loop trail, these lands would immeasurably aid resource protection. Here, 149 acres east of Indian Creek in the Dan River corridor, 118 acres north of Ruben Mountain, 134 acreas south of Wolf Rock, and 914 acres south of Ruben Mountain, Huckleberry Ridge, Devil's Chimney and Cook's Wall including Camp Retreat will be acquired.

Under Priority 4 a total of 1087 acres will be secured through conservation easements along 10.5 miles at the Dan River. A conservation easement is a land-use control which will insure the permanent protection of land adjacent to the river which is not included in the park's fee-simple ownership. A major factor in determining the desirable widths of the easements is using the line of sight from the river. Here, lands visible from the surface of the river would be protected by the conservation easements. West of the existing park boundary on the river and extending 5.1 miles west along the river to Highway 89, 586 acres will be controlled through easements; east of the proposed park boundary on the river, and extending 5.4 miles east along the river to Moratock Park, 501 acres will be controlled by easements.

One option in acquiring the conservation easements west of the park would the purchase (fee-simple) of the 374-acre Moore tract. Located in a bend in the Dan River two miles west of the park boundary, the tract consists of 174 acres on the south side of the river and 200 acres on the north side. Acquisition of the parcel would be solely for the protection of the floodplain and steep slopes above the river.

FEE SIMPLE ACQUISITION

PRIORITY 1	HECTARES	ACRES
Moore's Knob and Moore's Wall	188.3	465
	188.3	465
PRIORITY 2		
Hanging Rock Ridge	220.7	545
Lower Cascades	10.9	27
Lower Cascades to Indian Creek & Cascade Creek to S. R. 1001	55.1	136
	286.7	708
PRIORITY 3		
Dan River Corridor	60.3	149
Ruben Mountain, Huckleberry Ridge, Devil's Chimney, Cook's Wall	370.2	914
Ruben Mountain (north slope)	47.8	118
Wolf Rock	54.3	134
	532.6	1315
	1019	2516
Conservation Easement		
PRIORITY 4 - Conservation Easements		
Dan River from park boundary east to Moratock Park	203	501
Dan River from park boundary west to Hwy. 89	237.3	586
	440.3	1087
Existing park acreage	2372.65	5858.39
Priority 1 (fee simple acquisition)	188.3	465
Priority 2 (fee simple acquisition)	286.7	708
Priority 3 (fee simple acquisition)	532.6	1315
	3380.29	8346.39
Priority 4 (conservation easement)	440.3	1087
	3820.59	9433.39

STAFFING

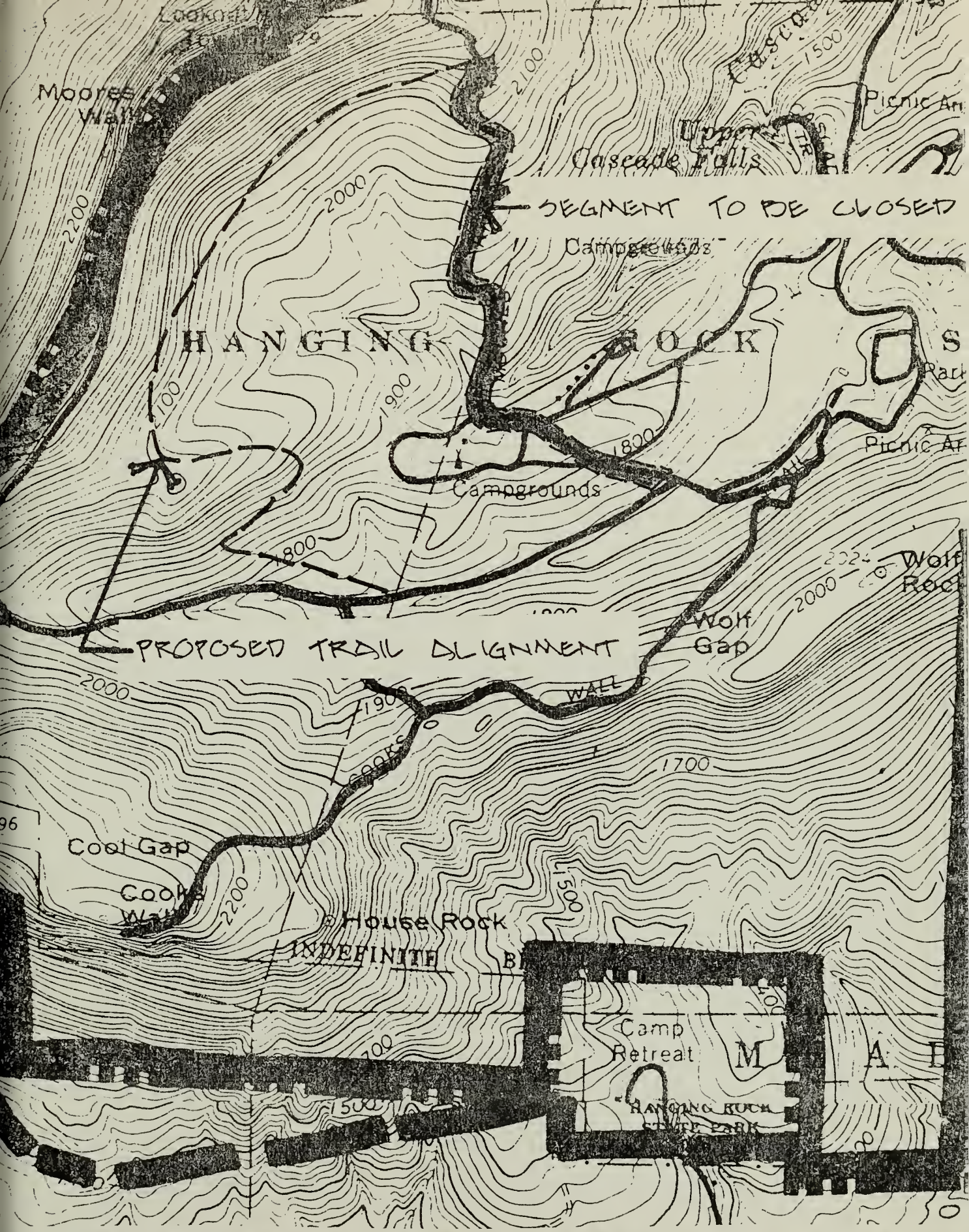
Existing

1	Park Superintendent III	Permanent
2	Chief Ranger	Permanent
3	Ranger I	Permanent
4	Ranger I	Permanent
	Labor Support	Hourly

Additional Proposed

5	Ranger I	Permanent (Lower Cascades)
6	Ranger I	Permanent (Tory's Den)
7	Maintenance Mechanic II	Permanent
8	Naturalist	Permanent
9	General Utility Technician	Permanent
10	Clerk-Typist	Part-time

The staff will be expanded as park facilities are developed and as park use grows beyond the numbers that the present staff can effectively manage.



MOORES KNOB TRAIL RELOCATION

APPENDICES

APPENDIX 1

REPORT ON SURVEY TEST

HANGING ROCK STATE PARK

JUNE 30 - JULY 10, 1979

Problems which were encountered at Hanging Rock State Park differ somewhat from those which occurred while surveying at Stone Mountain. The physical layout of (one entrance, picnic area, camping loop, swimming area) allowed for better double sampling. Also, there was a much better place to interview visitors. The main problem at Hanging Rock was labor. This was a first handled by the use of a seasonal park employee and a CETA worker. However, they were not available as the Fourth of July drew closer. On July 1, only the double sample was done and on July 2, only interviewing occurred. Beginning July 4, a laborer was assigned to the project for the duration.

Generally, good weather prevailed throughout the holiday week. Preliminary results show that day use at Hanging Rock may be to a greater degree than that experienced by Stone Mountain. This might be because of its being a more developed park and its proximity to Winston-Salem and Greensboro.

HANGING ROCK STATE PARK

Date	Total Attendance	Average # persons/car	Peak # swimmers	Peak # picnickers
6/30	1021	2.9	350	70
7/1	1593	2.4	610	145
7/2*	1380	3.0	300	*
7/3	1314	3.1	250	62
7/4	2732	3.3	550	323
7/5	1030	3.3	320	46
7/6	756	3.1	150	45
7/7	1497	3.2	81	89
7/8	1264	2.9	520	133
7/9	101	2.3	10	66

* On this date, no double sample was done. The number of swimmers is estimated from interviews. Almost no picnicking was reported by those interviewed.

Average persons per car during survey period - 2.95.

HANGING ROCK STATE PARK

Breakdown By Activity

	6/30	7/1	7/2	7/3	7/4	7/5	7/6	7/7	7/8	7/9
icnicking	100	200	*	85	425	60	55	100	150	80
vimming	450	750	*	325	700	400	200	100	625	25
king	100	120	*	100	150	40	40	70	40	10
lking	80	100	*	60	125	50	25	30	20	5
ating	50	30	*	50	60	25	25	50	40	0
shing	10	0	*	1	2	10	10	2	20	0
cycling	5	15	*	15	5	5	10	15	2	0
tdoor Games	20	40	*	50	40	20	15	45	5	5
ecial Groups	0	1	*	2	0	3	0	2	0	1
campers of tal attendance	22	7	*	12	5	14	28	17	4	35

The category of special groups includes church groups, bus loads, Family reunions using picnic shelters, special camps, etc.

* Double sample figures not available.

HARRIMAN STATE PARK

Camping

	% Tents	% Trailers	% Sites Not Filled
6/30	68	32	0
7/1	28	19	53
7/2	33	18	49
7/3	47	23	29
7/4	26	23	51
7/5	27	34	39
7/6	53	46	0
7/7	34	42	27
7/8	4	14	82
7/9	0	12	88

Parking

	Upper Lot	Lower Lot
6/30	*	*
7/1	264	152
7/2	*	*
7/3	140	18
7/4	350	204
7/5	153	19
7/6	87	13
7/7	71	45
7/8	350	70
7/9	21	9

* Counts not available.

These figures represent the number of vehicles in parking lots at periods of peak use.

HANGING ROCK STATE PARK

Interview Responses

	6/30	7/1	7/2	7/3	7/4	7/5	7/6	7/7	7/8	7/9
of vehicles exiting	203	DID NOT INTERVIEW	125	122	476	164	148	253	226	DID NOT INTERVIEW
interviewed	50		34	61	44	27	37	45	22	
of interviewees who took part in:										
Camping	35		26	20	5	17	24	16	32	
Picnicking	13		0	15	44	22	19	32	20	
Swimming	26		70	56	39	44	46	23	14	
Hiking	26		9	20	25	16	13	21	20	
Nature Walks	5		0	3	4	7	7	4	6	
Boating	7		59	4	4	4	2	4	4	
Fishing	1		0	1	0	0	4	1	6	
Bicycling	1		0	0	0	2	0	0	0	
Sightseeing	20		18	17	27	13	19	20	30	

Origins of Visitors

Charlottesville, Va.
Columbia
Greenville
Winston-Salem
Baltimore, Md.
Greensboro
Durham
Elon College
High Point
Vermont
Walnut Cove
Danbury
Jacksonville
Burlington
Murray, Ky.
Nashville
Richmond, Va.
Shelby
Dobson
Standing Ridge
King
Bleckley, W.Va.
Bellews Creek
Pine Hall
Pilot Mtn.
Summerfield
Stateesville
Charlotte
Kernersville
Tobaccoville
Reidsville
Arkansas
Pleasant Garden
Moores Springs
Harmony
Florida
Eden
Smithfield
Ohio
Jonesville
Raleigh
Stoneville
Pinnacle
Hillsborough
Sandy Ridge
Plymouth
Waycross, Ga.
Madison
Pitts Co., Va.
Chapel Hill
Walkertown
Salisbury
Stewart, Va.
Gibsonville
Elkin
Jamestown
Concord
New York
Meadows
Newport News, Va.
Asheboro
Mt. Airy
Germantown
Baden
Lawsonville
Knoxsville, Tn.
Florenceville, Va.
Boonville
Advance
Oxford
Mullins, S.C.
Plafftown
Westfield
Martinsville
Colfax
Sauertown
Ft. Bragg
Lexington
New Bern
Myrtle Beach
Archdale
Thomasville
Spencer
Cooleemee
Clemmons
Westville
Rural Hall

APPENDIX 2

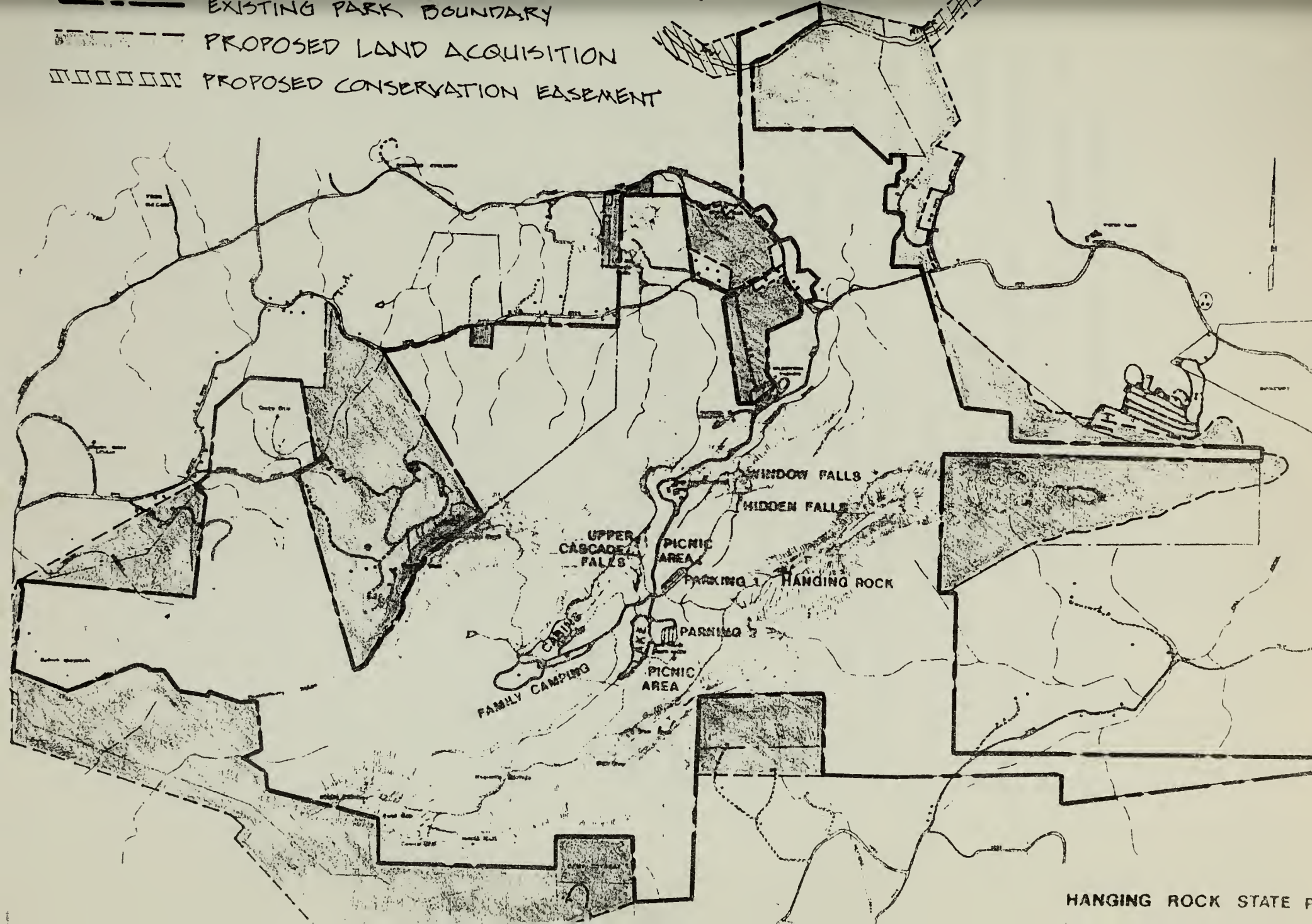
Appalachian Mountain Plants, Rare in the Piedmont

Which Grow in the Park Natural Area

Agastache Scrophulariaefolia
Arenaria groenlandica var. groenlandica
Asclepias quadrifolia
Asplenium montanum
Betula lenta
Campanula divaricata
Chelone cuthbertii
Comptonia peregrina
Convallaria majallis var. montana
Corydalis sempervirens
Danthonia compressa
Drosera rotundifolia
Fothergilla major
Galium latifolium
Glyceria meticaria
Habenaria ciliaris
Heuchera pubescens
Impatiens pallida
Juncus brevicaudatus
Leucothoe racemosa
Magnolia fraseri
Melampyrum lineare
Monarda clinopodia
Oxypolis rigidior
Paronychia argyrocoma
Quercus ilicifolia
Rhododendron calendulaceum
R. catawbiense
R. maximum
Saxifraga careyana
S. michauxii
S. micranthidifolia
Sedum telephioides
Solidago arguta
Sorbus arbutifolia var. atropurpurea
S. melanocarpa
Stewartia ovata
Thermopsis fraxinifolia
Tsuga canadensis
T. caroliniana
Viburnum cassinoides
Viola cucullata
Xerophyllum asphodeloides

APPENDIX 3

pposed Construction for andicapped Accessibility nd Uses	Parking Space	Walkway	Written & Tactile Si	Access to Telephone	Call Bell for Assist	Access to the Buildi	Access to Trail	Supplemental Infor-mation	Access to Picnic Are	Access to Beach	Access to Picnic
k Office	●	●	●	●	●	●		●			
erpretive Program							●	●			
itor Center	●	●	●			●		●			
logical Education	●	●	●			●	●	●			
er Picnic Area	●	●	●						●		
er Chuckades		●	●				●				
nhouse/Swimming Area	●	●	●			●		●	●	●	
thouse		●	●			●					
ily Cabins	●	●	●			●					
ily Campgrounds	●	●	●								
pground Washhouses		●	●			●					


EXISTING PARK BOUNDARY
PROPOSED LAND ACQUISITION
PROPOSED CONSERVATION EASEMENT
WINDOW FALLS
HIDDEN FALLS
UPPER CASCADE FALLS
PICNIC AREA
PARKING 1
HANGING ROCK
PARKING 2
PICNIC AREA
CABINS
FAMILY CAMPING
HANGING ROCK STATE P

Appendix 4: Construction Details

The following construction details are to be used by the park staff and volunteers for trail construction, picnic area rehabilitation, and planting. Standards for trail construction address the clearing of vegetation, preparation of the trail surface, stabilization of the trail, construction of switchbacks, & trail construction in wet areas. The details for picnic area rehabilitation deal with the construction of a timber retaining wall and providing a level surface on which the picnic table will rest. Planting details include standards for planting small and large shrubs, small to large trees.

The details should be applied where necessary. For example, in a picnic area, trails to the individual sites may require extensive rehabilitation and planting of vegetation may be necessary to control erosion.

With these details in hand, the park staff and volunteers will have a standard guide to effectively deal with these problems.

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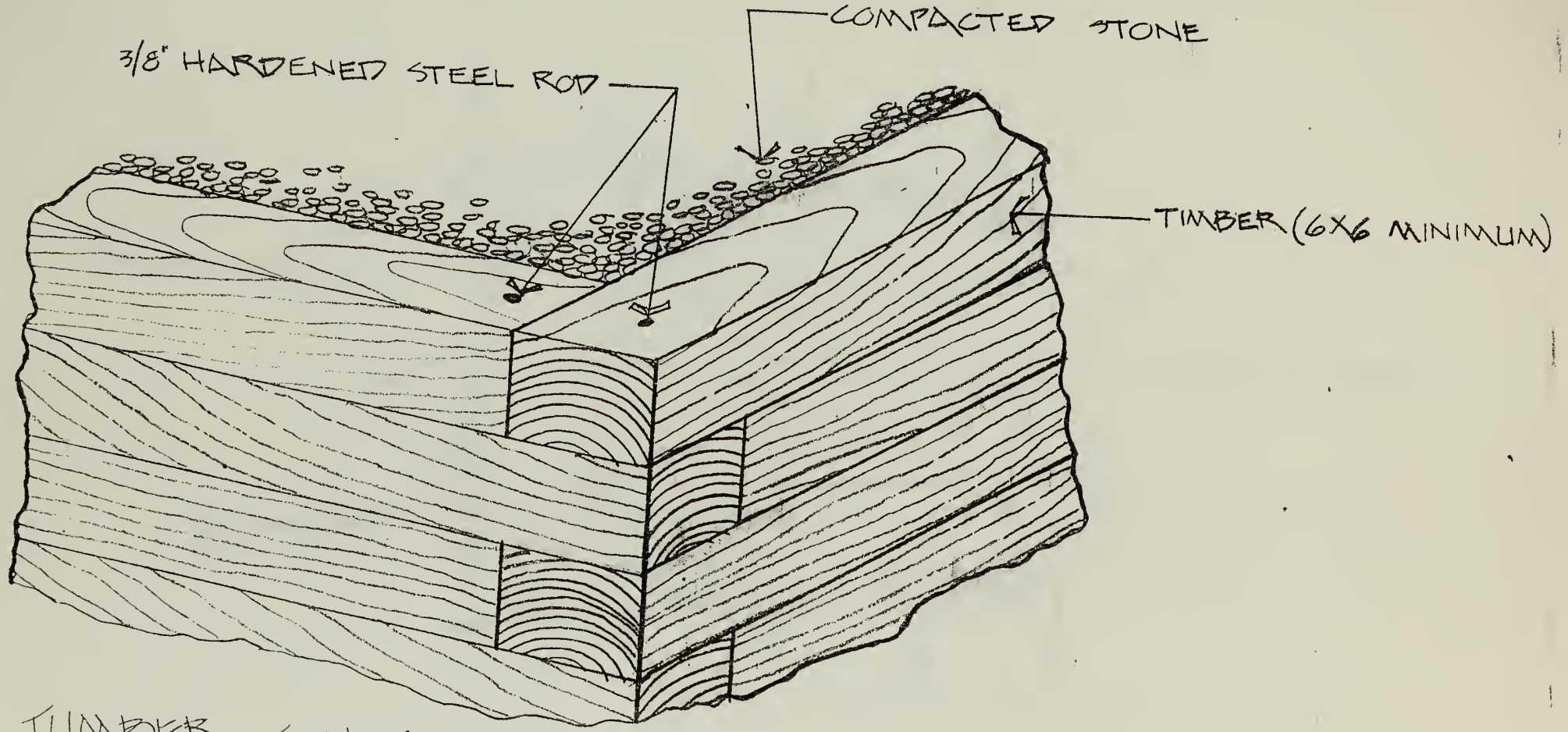
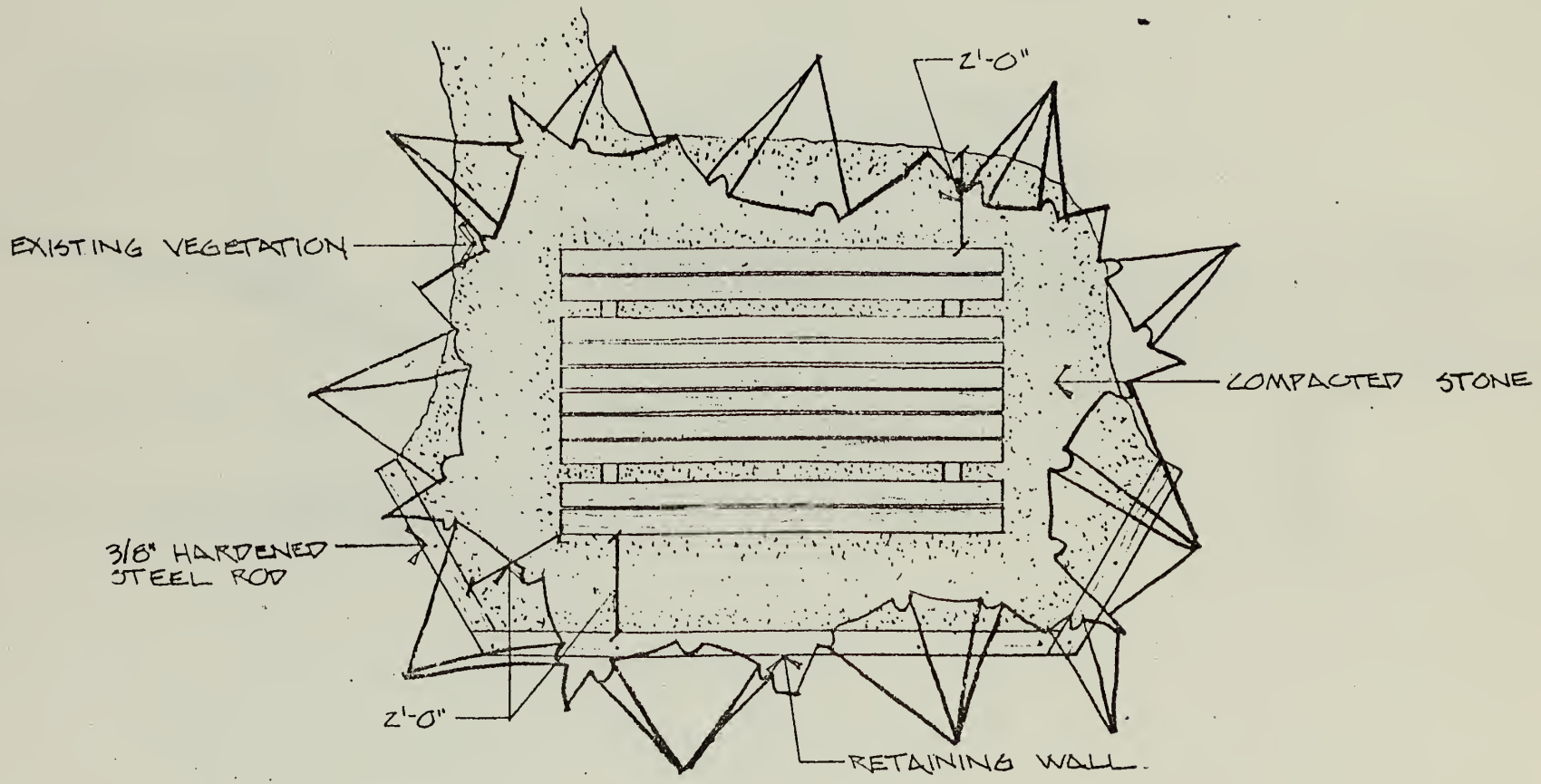
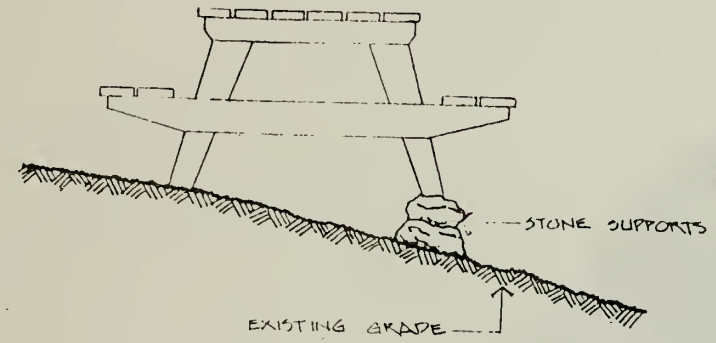


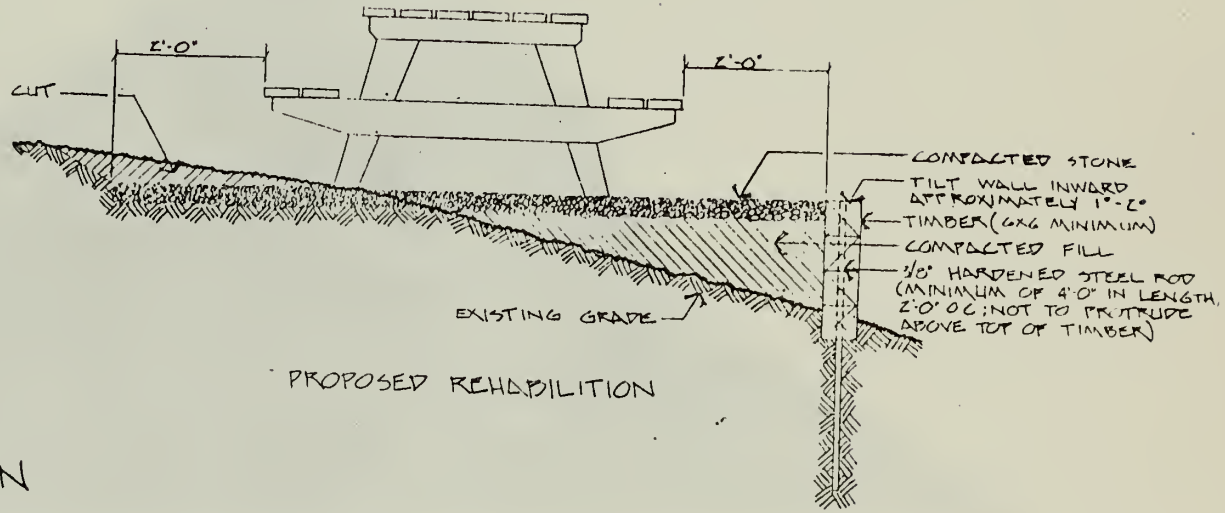
TIMBER CONSTRUCTION STANDARD



PICNIC AREA SITE PLAN

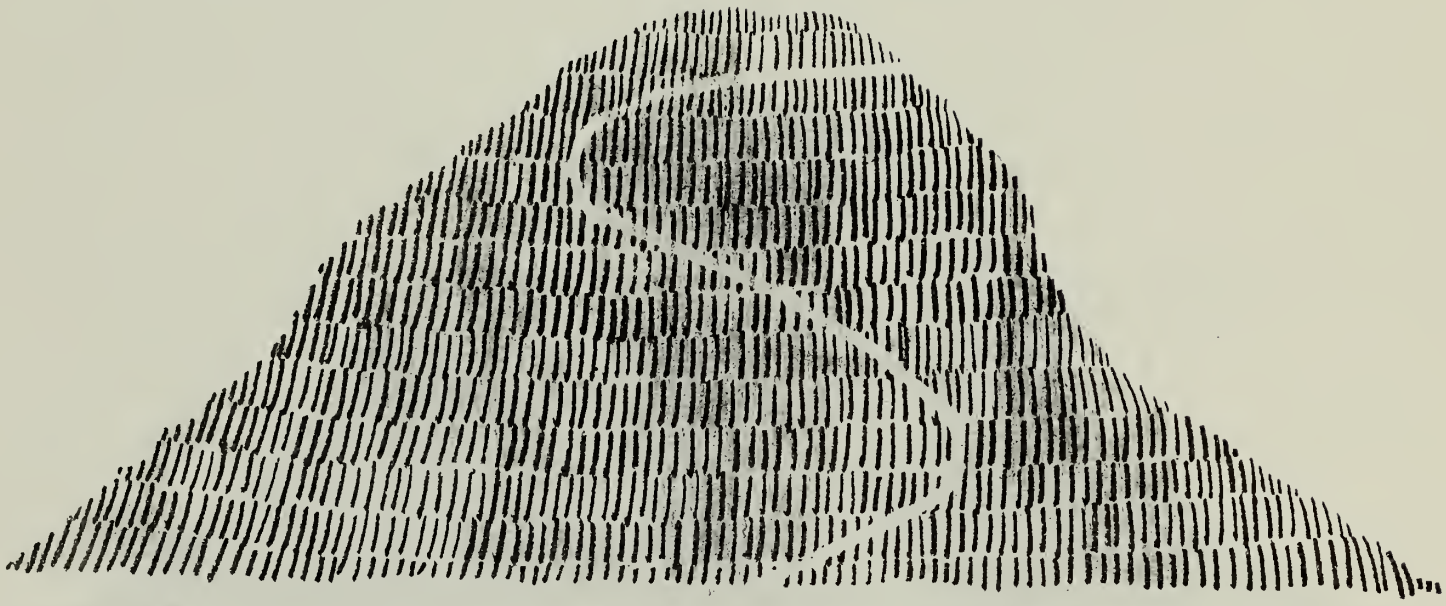


EXISTING CONDITION



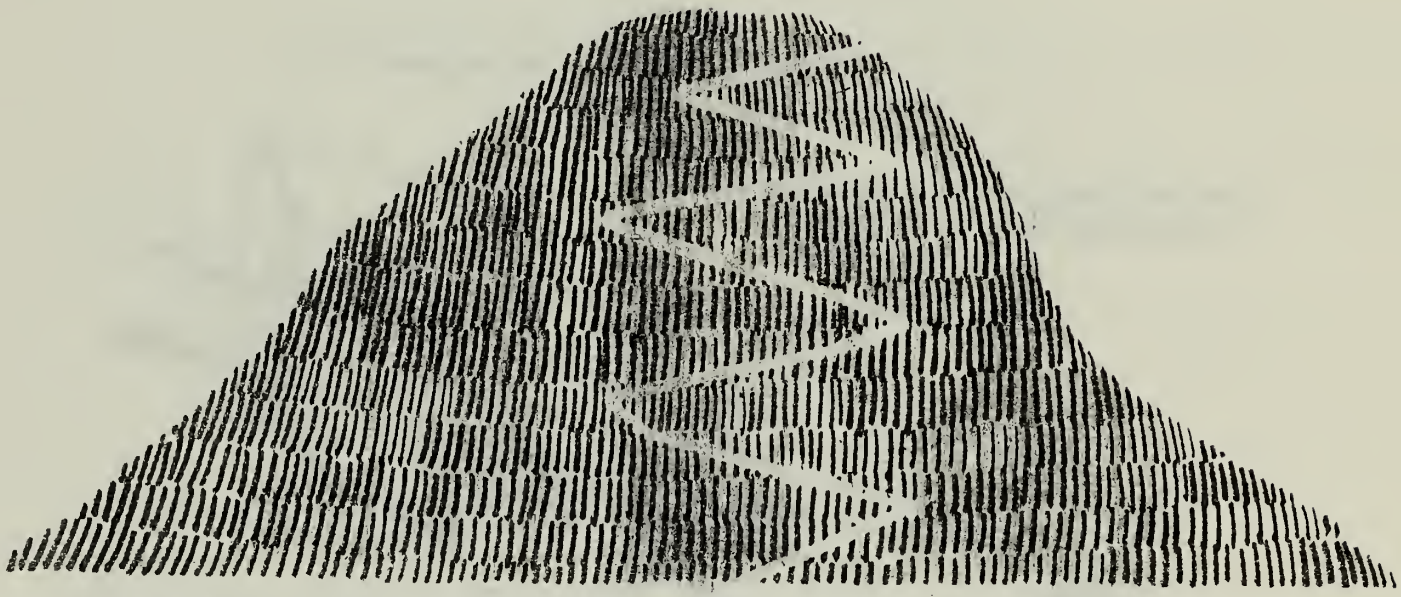
PROPOSED REHABILITION

PICNIC AREA REHABILITATION



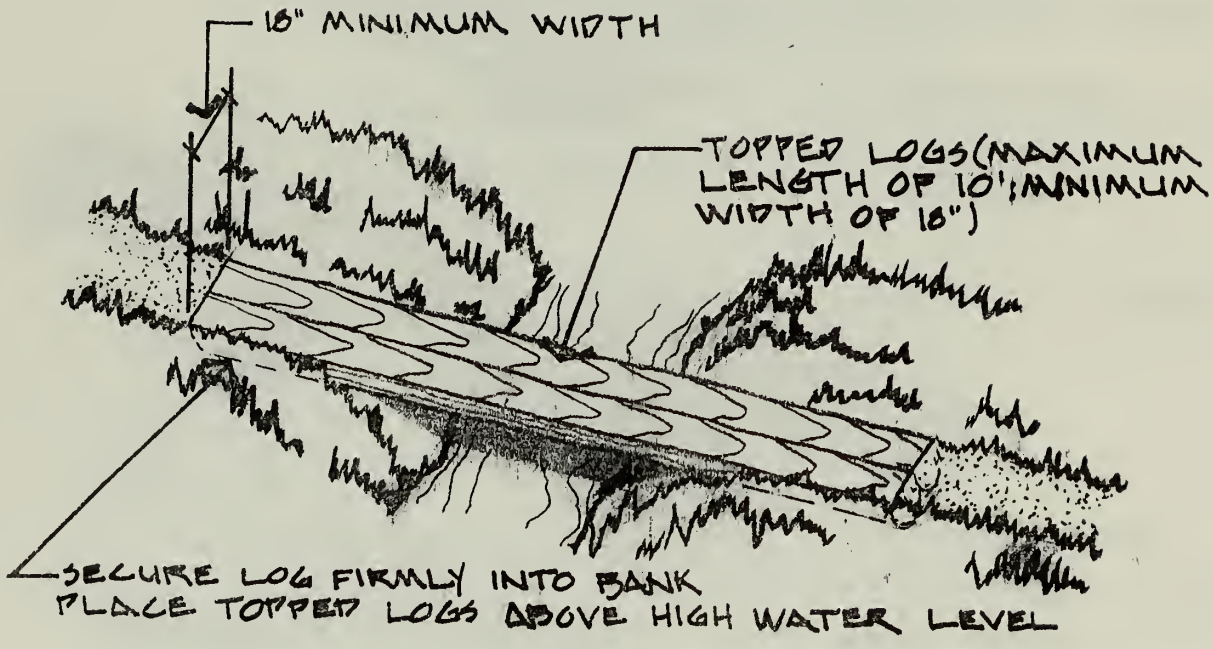
CORRECT SWITCHBACK CONSTRUCTION

1) LONG DISTANCE BETWEEN SWITCHBACKS
2) SWITCHBACKS ARE FEW IN NUMBER
3) ONE SWITCHBACK IS NOT VISIBLE FROM ANOTHER
4) SWITCHBACKS ARE FORMED INTO WIDE TURNS OFTEN WITH THE USE OF STEPS
5) GRADES ARE STEADY

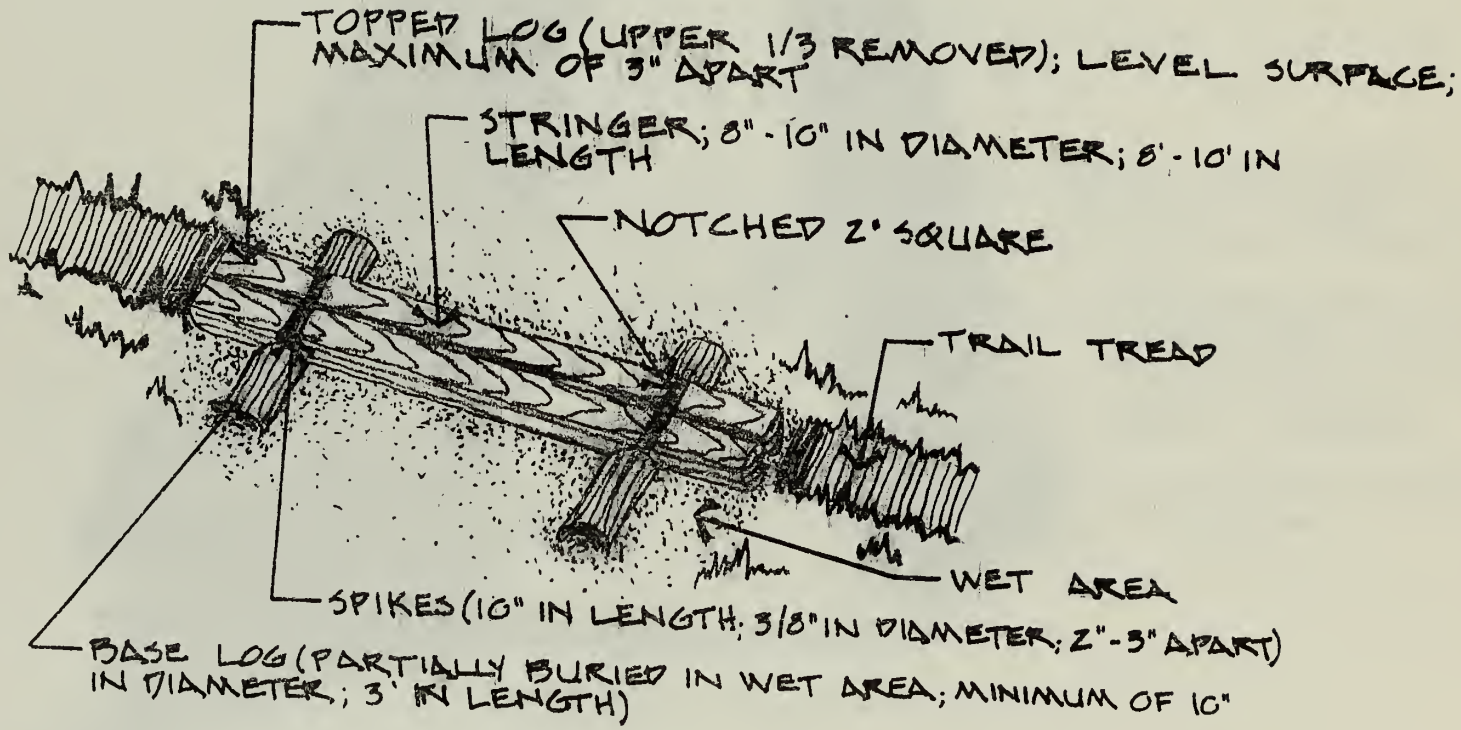


INCORRECT SWITCHBACK CONSTRUCTION

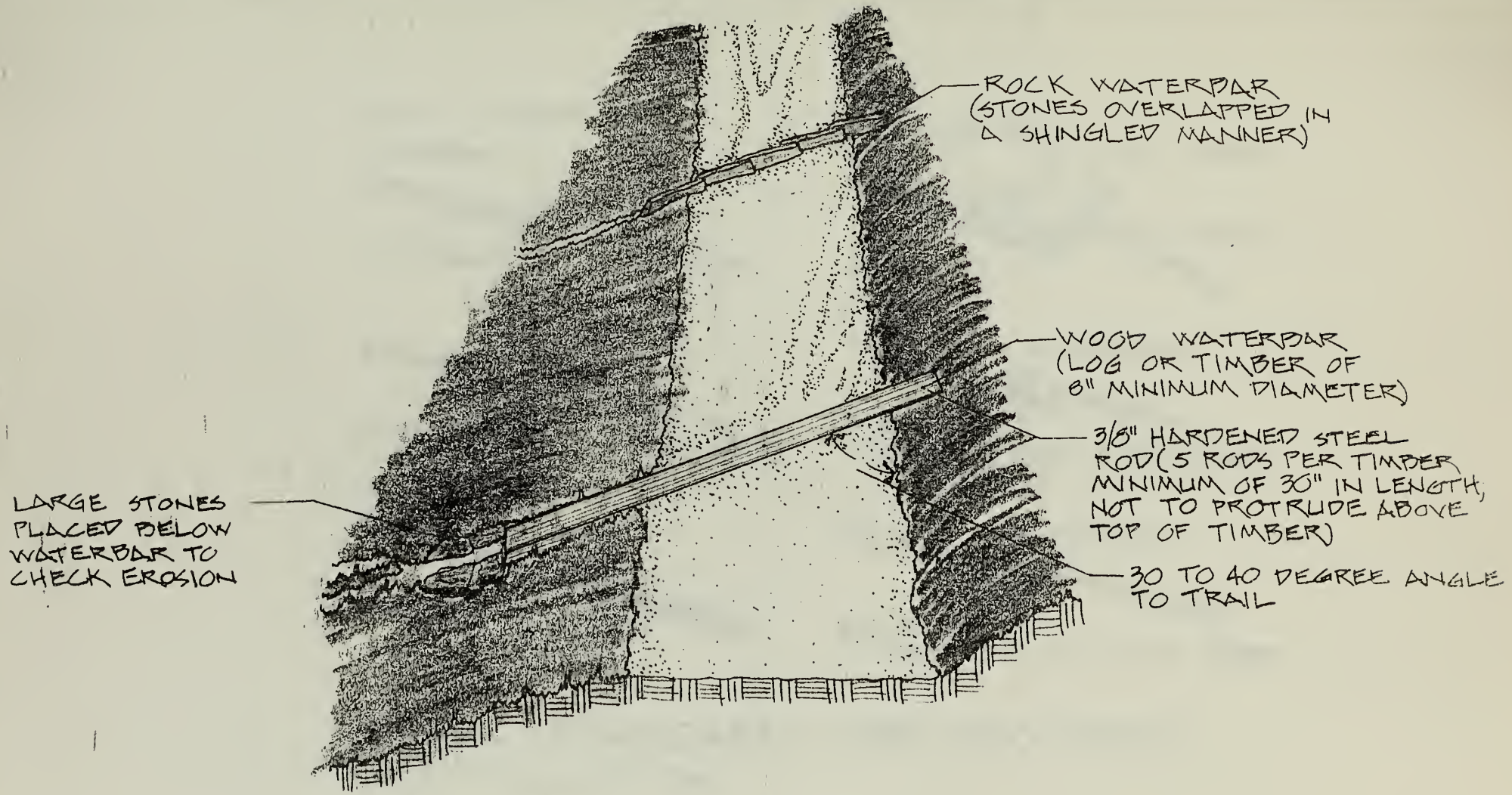
1) TOO MANY SWITCHBACKS TOO CLOSE TOGETHER; HIKERS FREQUENTLY TAKE SHORTCUTS RESULTING IN AN INCREASE IN SOIL EROSION AND PLANT MORTALITY
2) TOO SHORT OF A DISTANCE BETWEEN SWITCHBACKS
3) REPETITION OF SWITCHBACKS BECOME MONOTONOUS TO THE HIKER.



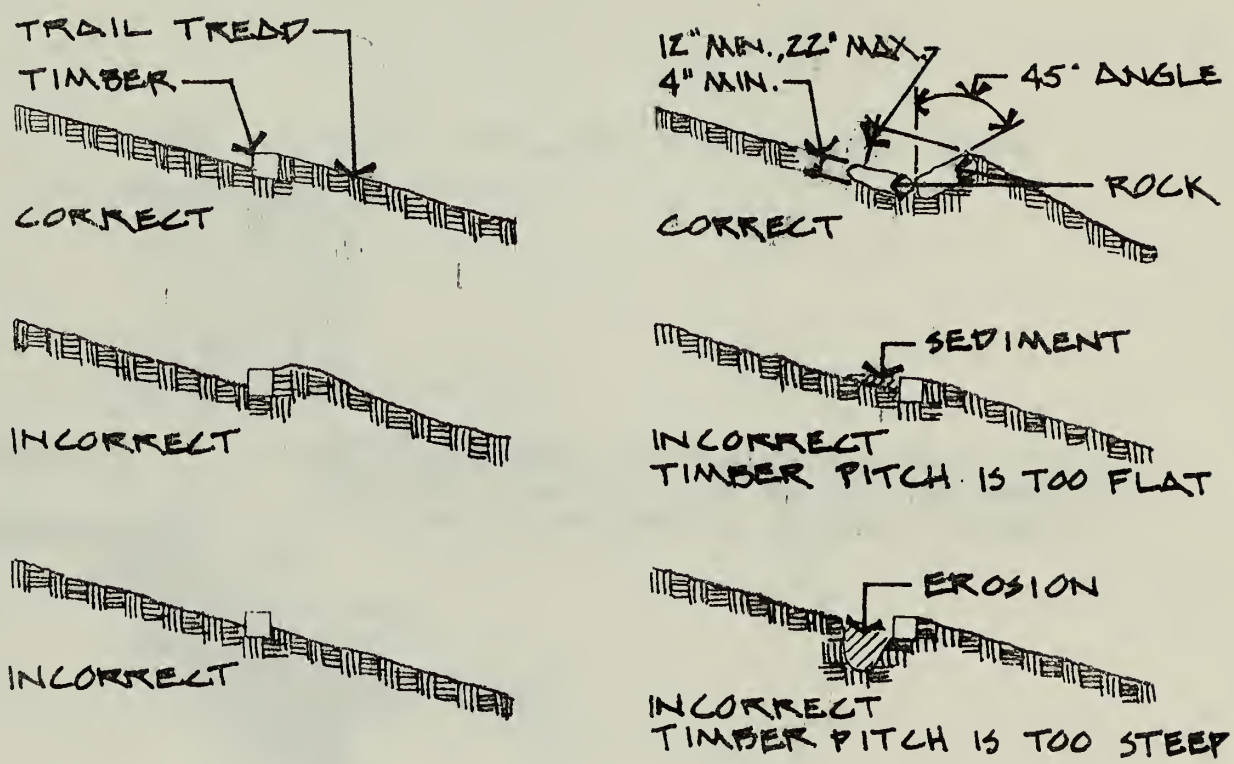
TRAIL STANDARDS FOR TOPPED LOG BRIDGE INSTALLATION



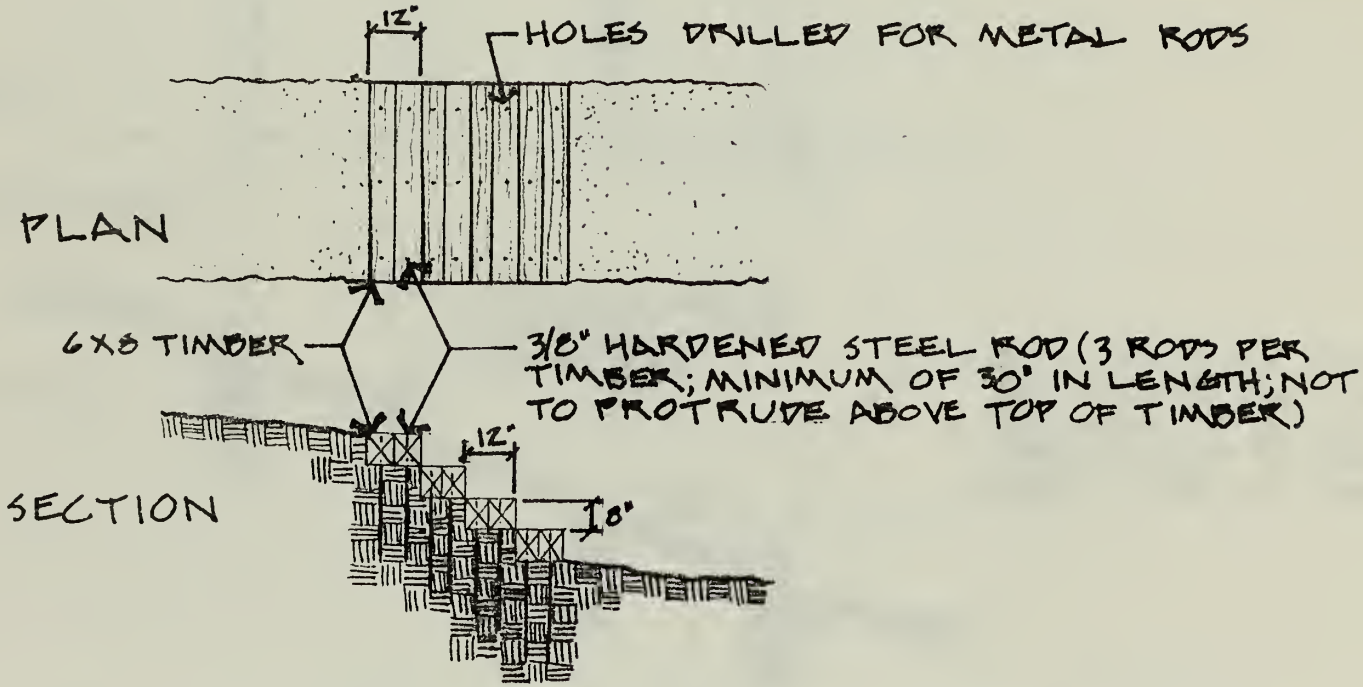
TRAIL STANDARDS FOR TOPPED LOG BOG BRIDGE INSTALLATION



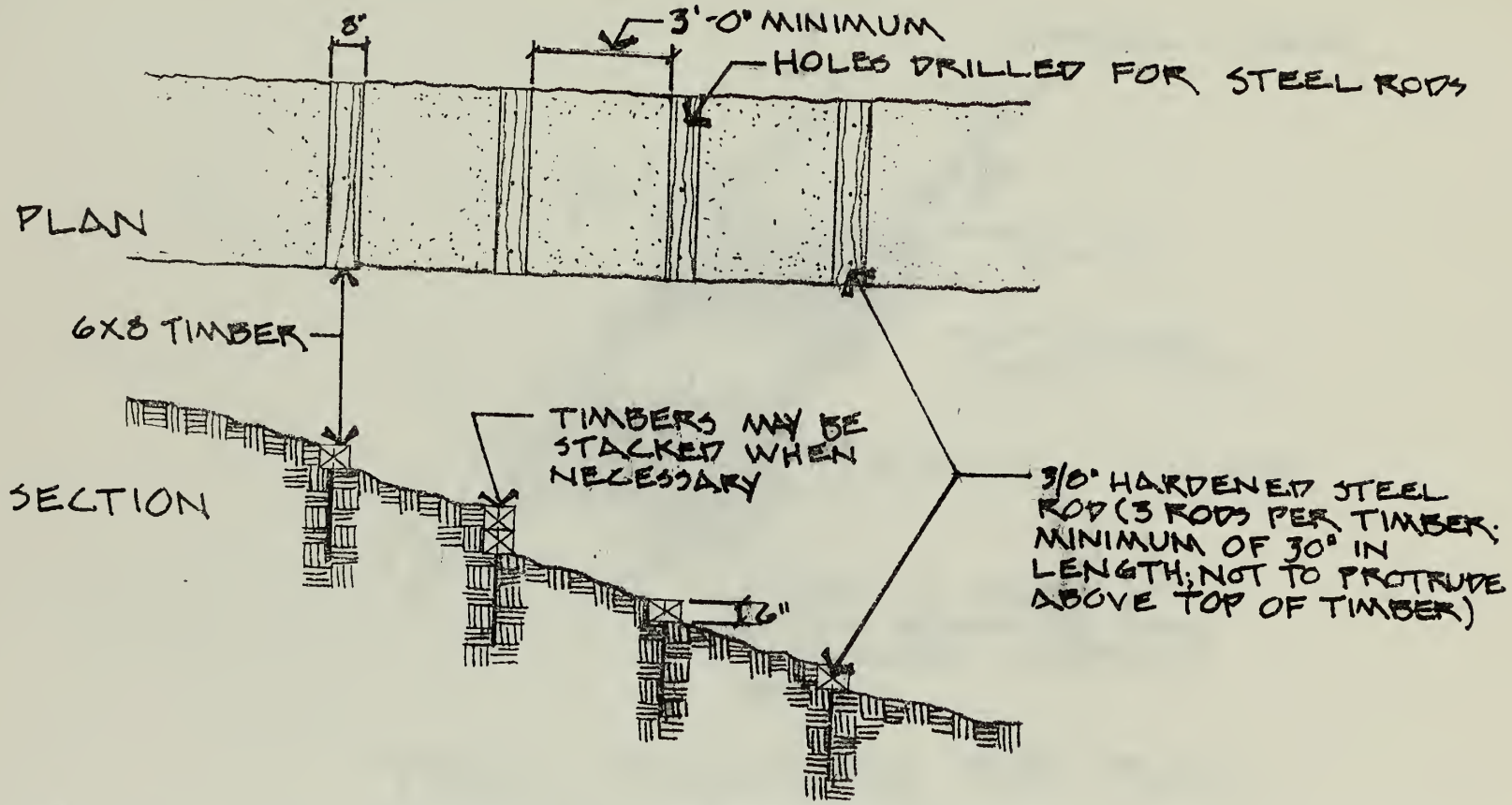
TRAIL STANDARDS FOR WATERBAR INSTALLATION



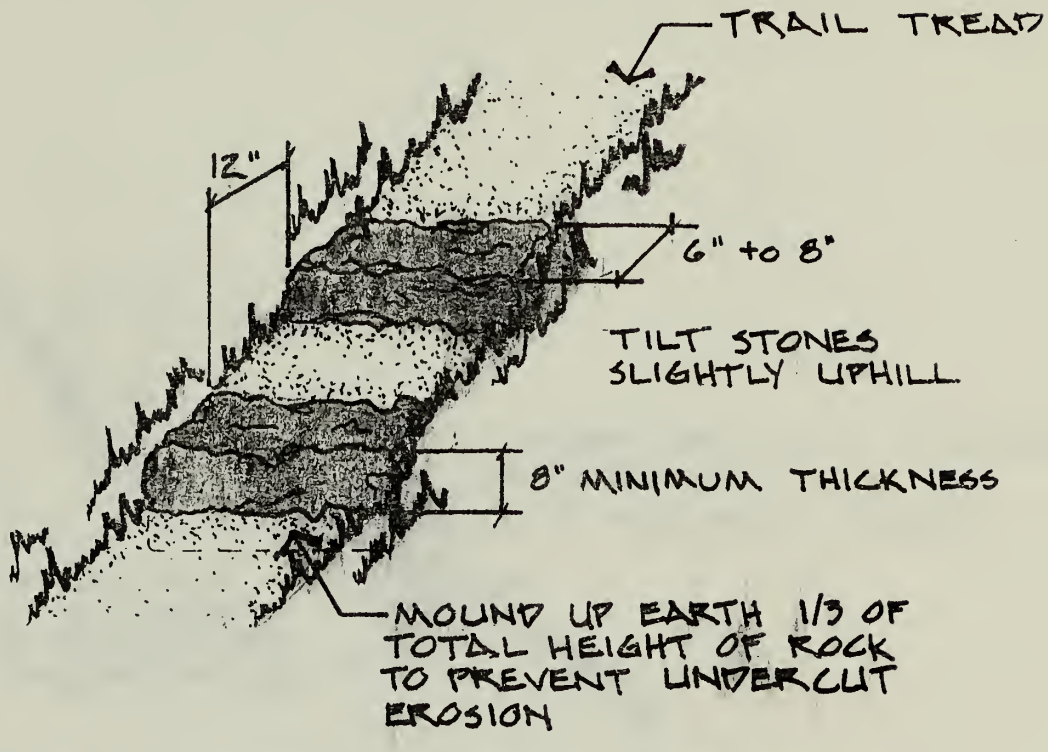
TRAIL STANDARDS FOR WATERBAR INSTALLATION



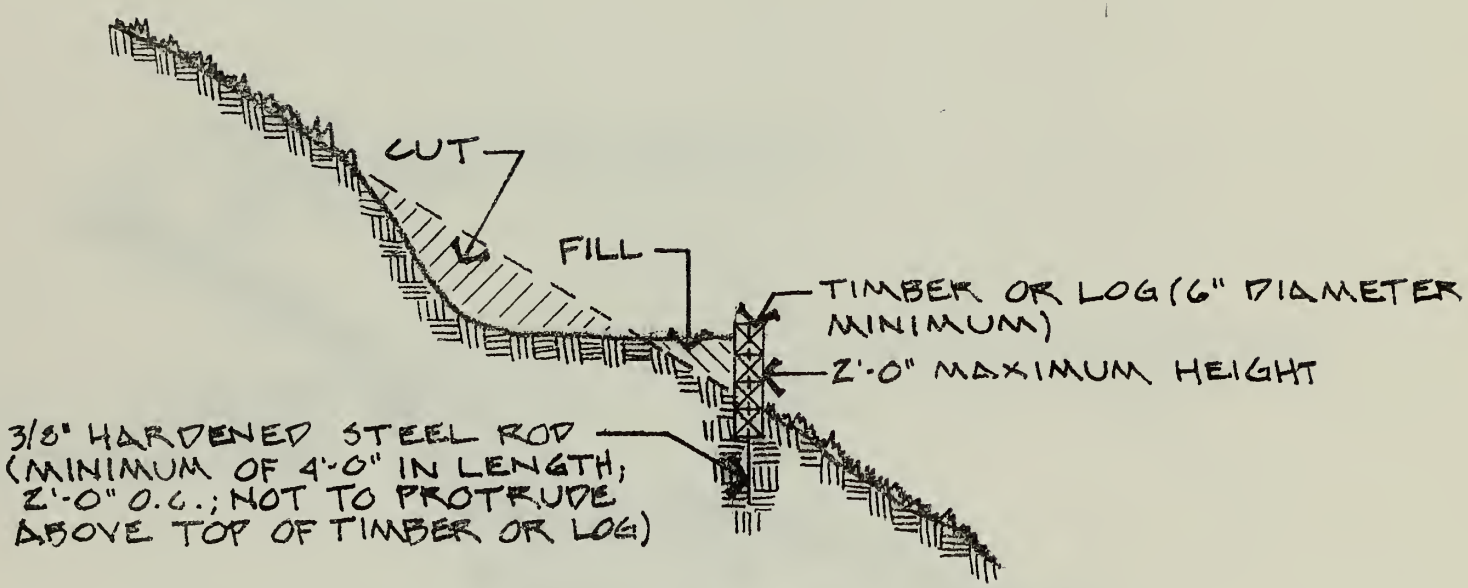
TRAIL STANDARDS FOR TIMBER STEP CONSTRUCTION



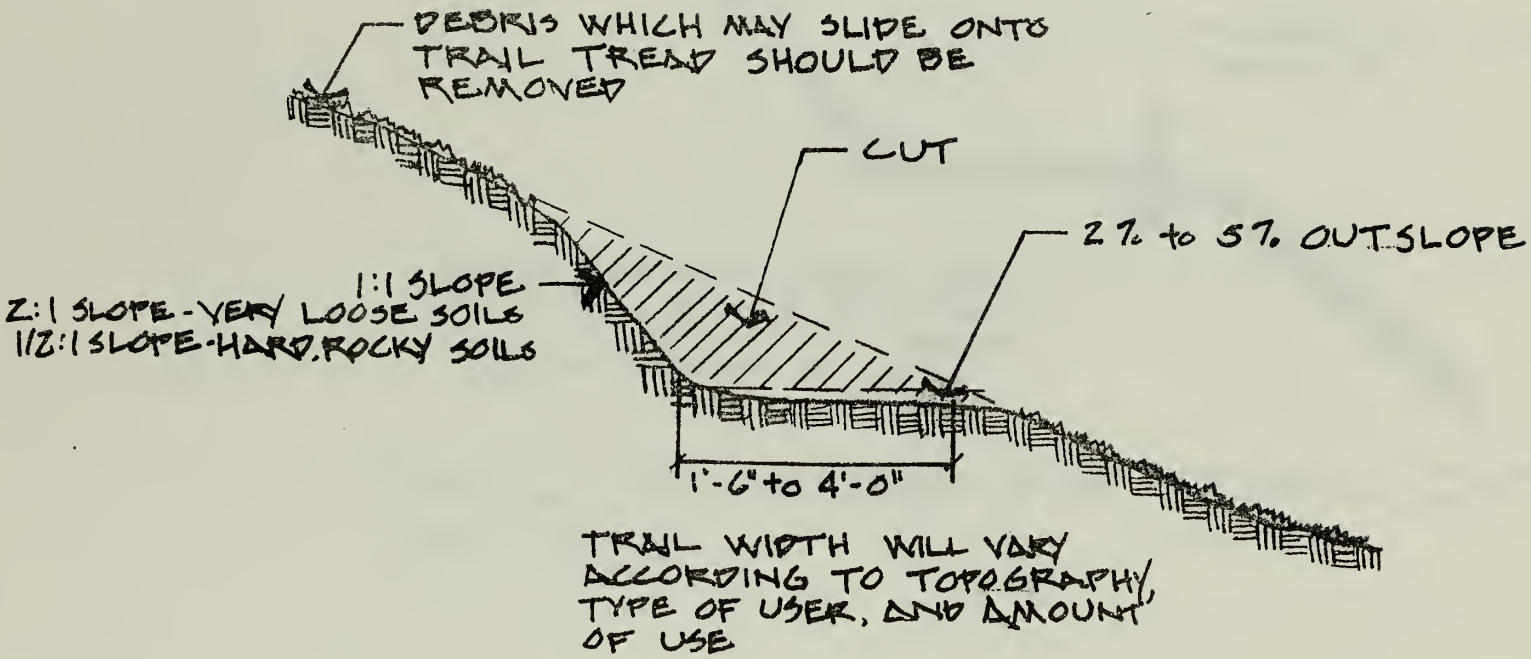
TRAIL STANDARDS FOR TIMBER STEP/TERRACE CONSTRUCTION



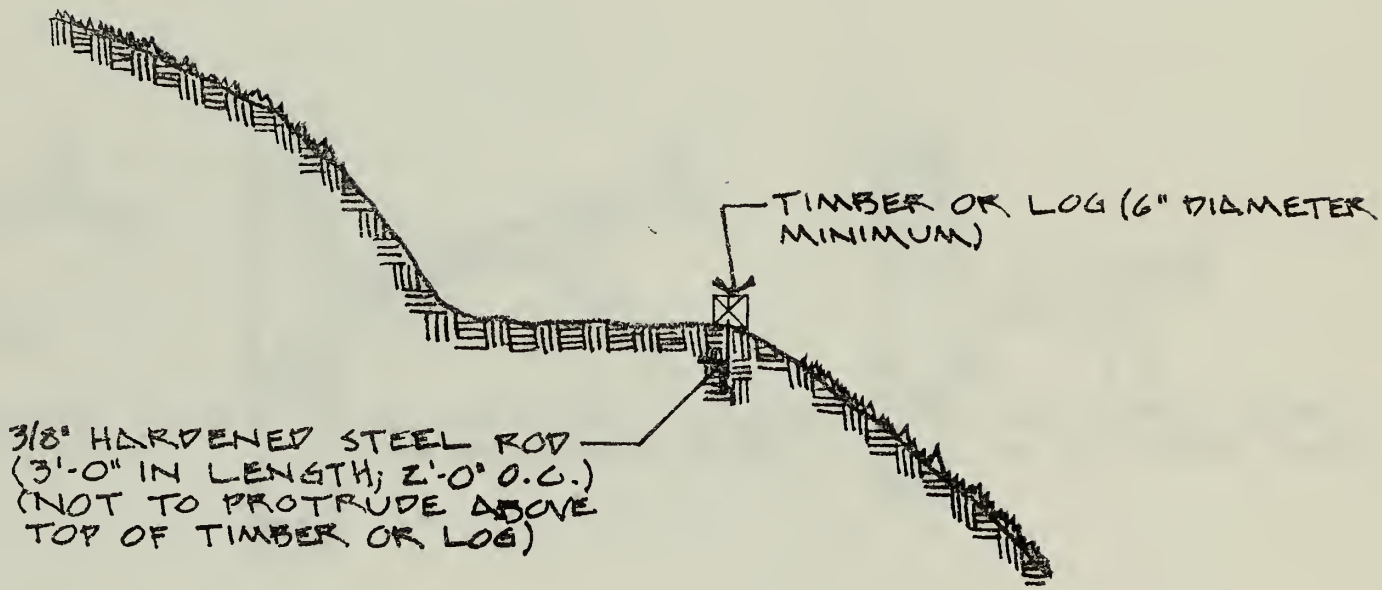
TRAIL STANDARDS FOR ROCK STEP INSTALLATION



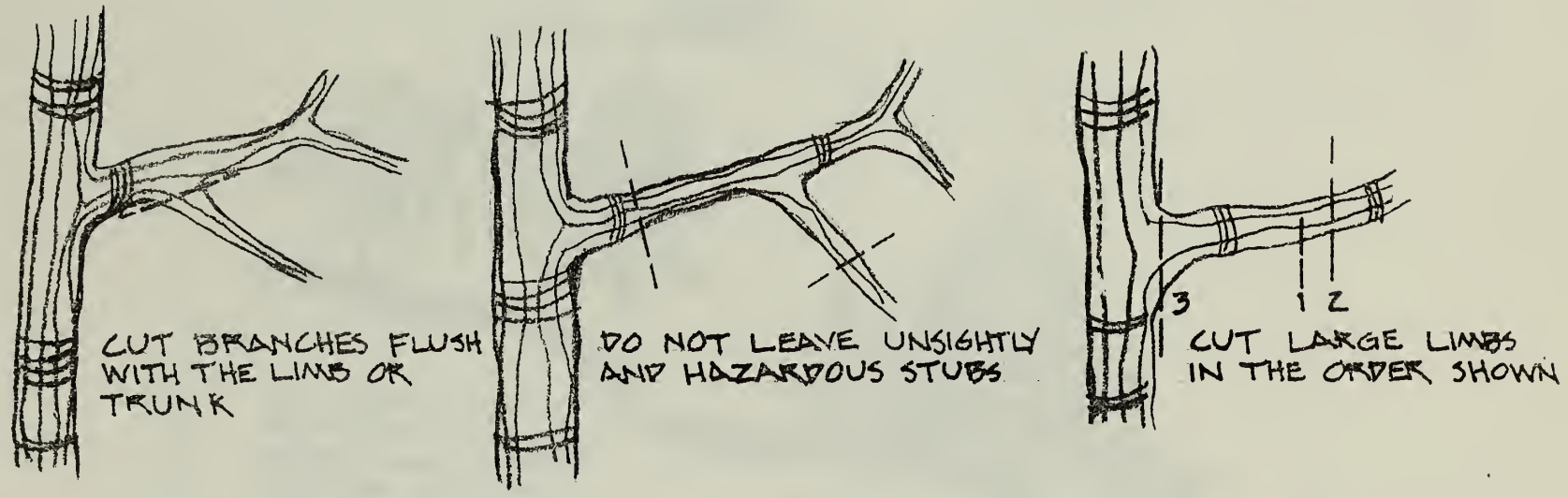
TRAIL STANDARDS FOR RETAINING WALL CONSTRUCTION



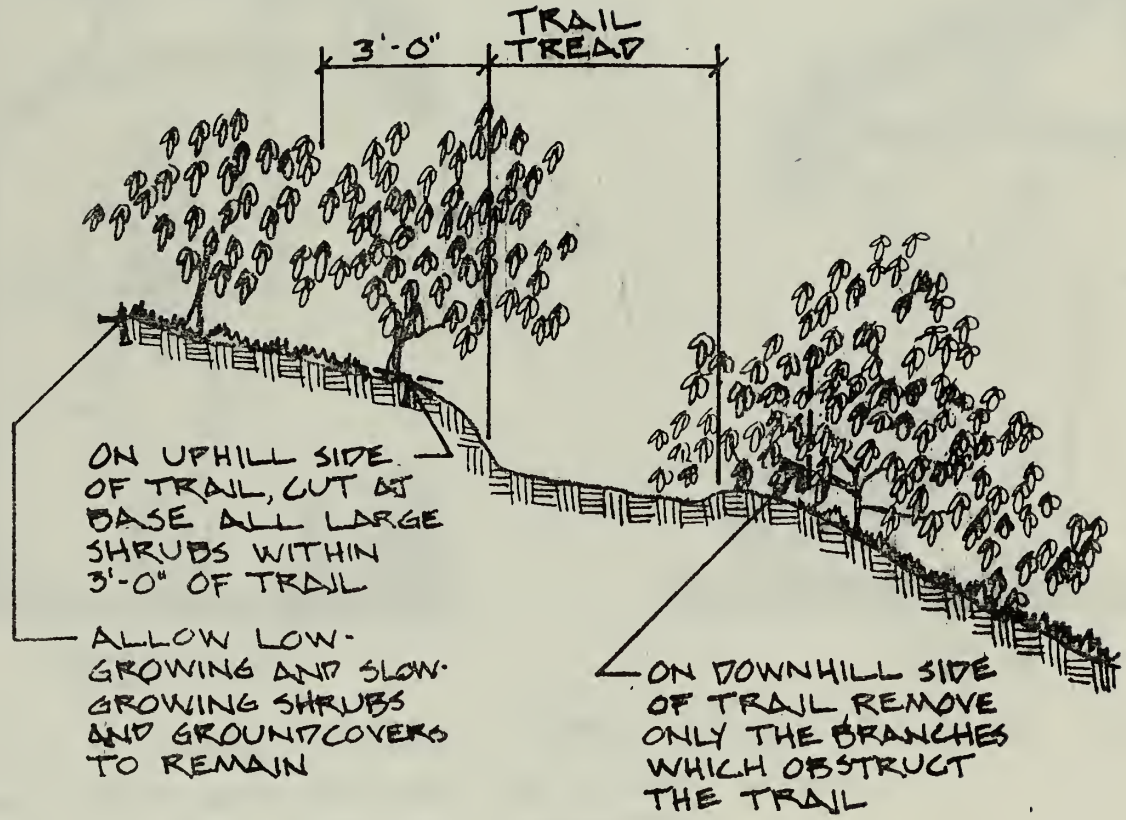
TRAIL STANDARDS FOR TREAD CONSTRUCTION



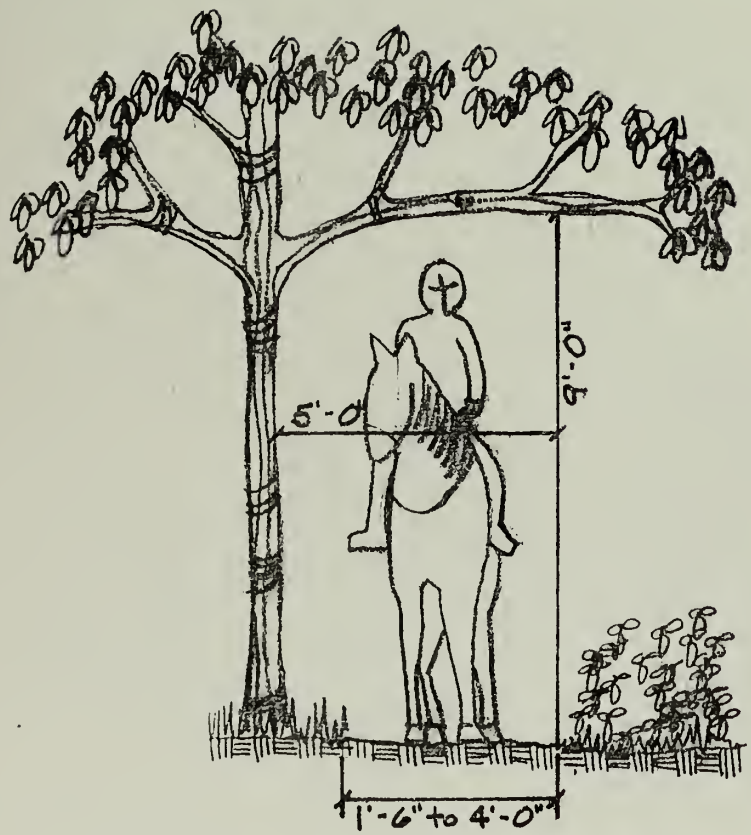
TRAIL STANDARDS FOR STABILIZATION OF EDGE

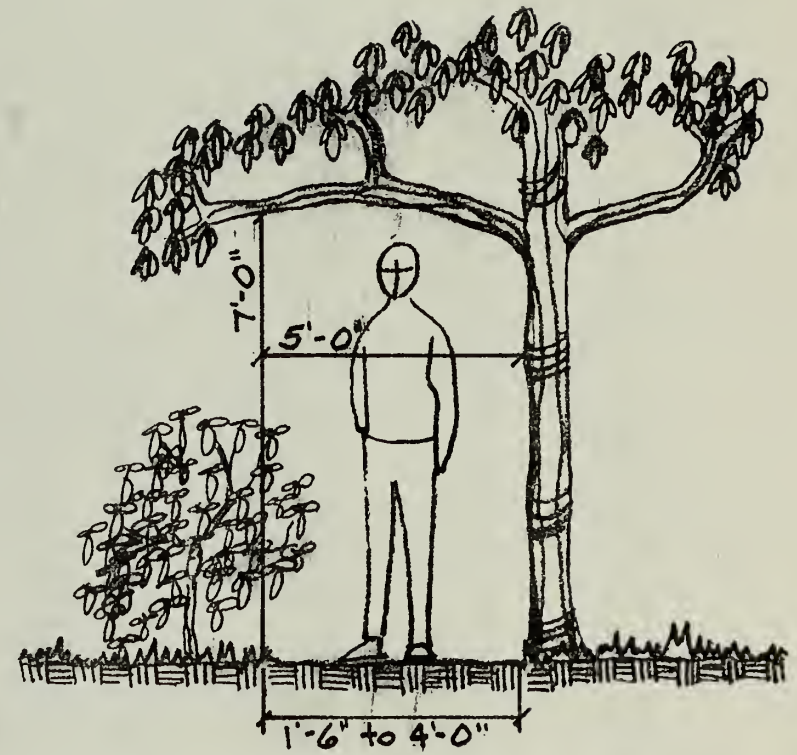


PROPER PRUNING METHODS



TRAIL STANDARDS FOR VEGETATION CLEARING ON SIDE SLOPES





TRAIL STANDARDS FOR VEGETATION CLEARING

1) PRUNE TREES AND SHRUBS TO LIMITS SHOWN.
2) REMOVE NO TREES OVER 4" IN DIAMETER.
3) ALLOW LOW SHRUBS AND GROUND COVER TO REMAIN.

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